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July 19, 2004 ■ Volume 21, Number 29

> "The bill comes every single month, and literally a guy comes off the truck with a dolly of boxes. It takes four full-time people to go through them.
>
> CTO OF A GLOBAL FINANCIAL SERVICES COMPANY

Service, but no smile:

Nemertes Research Survey on Carriers

Customers are generally pleased with the performance and reliability of Tier 1 service provider networks, but they're less than thrilled with the level of customer service, according to a survey by Nemertes Research. PAGE 35

New server chips carry hidden cost

■ BY JENNIFER MEARS

In the rush to roll out servers that put multiple processors on a chip, IBM, Intel, Sun and others inadvertently are raising software costs for users.

At issue is that software vendors such as Oracle and Microsoft that license software on a per-CPU basis are likely to consider each processor a separate CPU, a practice that means double the licensing costs for enterprise users deploying new dual-core servers. These servers have two processors on a single piece of silicon. With four-core servers and more on the horizon, the issue likely will become amplified as vendors try to figure out how to price software and enterprise users

See Multi-core, page 49

Tower of power

A plethora of multi-core servers and processors will hit the market in the next couple of years.

IBM: Dual-core Power5 available now.

Sun: Dual-core UltraSparc IV available now. Eight-core Niagra expected in 2006.

HP: Dual-core PA-8800 available now.

Intel: All chips will be dual core by the end of 2005. Eight-core Tanglewood slated for 2006.

AMD: Dual-core Opteron set for 2005.

IBM's dual-core Power5.

Users, vendors treating healthcare patching ills

HOSPITALS IN A BIND UPDATE

■ BY ELLEN MESSMER

There continues to be plenty of finger-pointing over who should fix the broken process for patching Windows-based patient-care systems, but some users and vendors are at least trying to deal with the problem directly.

As outlined in a *Network World* story earlier this month (www.nwfusion.com, DocFinder: 2594), hospital IT and network professionals say their hands are tied when it comes to patching patient-care systems that increasingly are based on Microsoft software and that are often networked to simplify information sharing. IT professionals say device makers don't want customers fussing with their systems out of fear that the products will not conform to rules laid out by the Federal Drug Administration, which says the

See Patches, page 48

[illegible]

Page 10.

New tools corral WLAN radio waves

■ BY JOHN COX

A host of new management products are giving network executives tools to control the most elusive element of wireless LANs: the radio waves that actually connect clients to access points.

Most are being touted as security products because they detect, and in some cases disconnect, rogue WLAN access points and users, and show traffic patterns that might reveal an attack or a malfunction. But there are other benefits that spring from this ability to "read" radio frequency waves, including tracking the affect and location of RF interference, visualizing real-time behavior of wireless networks and fine-tuning WLAN settings to ensure optimal throughput.

The new RF tools differ from traditional network management applications, which focus on Layer 3 and rely on the fact that IP-addressable devices are

See RF tools, page 16

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NetworkWorld 7/19/04

News

- 8 **Microsoft** technology needs others' help.
- 8 **Trio** ink historic IM partnership.
- 10 **Healthcare** world braces for federal IT plan.
- 10 **Catalyst conference** to focus on union of infrastructure and application components within service-oriented architecture.
- 12 **Cisco** names new CTO, shifts executives.
- 12 What **Leucadia's overture toward MCI** really means.
- 14 **SWsoft** divvies up server management.
- 14 Merged groups tackle interoperability to give **MPLS** a needed boost.
- 14 **NetScout** monitors aggregated WAN links.
- 48 **Aventail** goes small with SSL VPN appliance.
- 49 **Opsware** extends automation features.

Face-off

Is graceful restart the best way to ensure IP reliability? Matt Kolon (left) of Juniper says yes, but Nortel's Ru Wadasinghe is partial to nonstop routing. **Page 31.**

Service, but no smile

Customers are happy with the performance of their carriers' networks, but are less enthralled by the customer service they receive from the major service providers, according to a Nemertes Research survey. **Page 35.**

Nemertes Research Survey on Carriers

CLEAR CHOICE TEST

NetIQ's Security Manager does an impressive job sorting through reams of security event data. **Page 37.**
Peribit Networks' SR-100 appliance uses compression technology to help conserve WAN bandwidth. **Page 38.**

Infrastructure

- 17 Cisco buys earn mixed reviews.
- 17 Apple pumps up server operating system.
- 18 **Kevin Tolly:** Benchmarking WLAN switches: Let me count the ways.

Enterprise Applications

- 21 Is Microsoft changing its stripes?
- 21 Groove Networks' release improves collaboration software.
- 22 **Scott Bradner:** Actual losses or wishful thinking?

Service Providers

- 23 XO Communications expands offerings in wake of UNE-P rulings.
- 23 IPass beefing up policy enforcement.
- 24 Verizon Wireless, Lucent strike $5 billion deal.
- 24 **Johna Till Johnson:** No substitute for government-funded research.

Net.Worker

- 25 Congress fights telework malaise.

Archos' AV420 gets high marks as a handheld digital entertainment center. Page 30

Technology Update

- 29 802.11h helps wireless LANs share spectrum.
- 29 **Steve Blass:** Ask Dr. Internet.
- 30 **Mark Gibbs:** Networking your garden.
- 30 **Keith Shaw:** Move over, iPod!

Opinions

- 32 **On technology:** Security vendors peer inside.
- 33 **Jeff Kaplan:** The failure of trade shows.
- 33 **Thomas Nolle:** Mixed messages on wireless value.
- 50 **BackSpin:** Frankensoft: The monster we made.
- 50 **'Net Buzz:** Getting tough with identity thieves feels right, but will there be a return on the investment?
- 44 Career classifieds.

Management Strategies

- 39 Staffing by numbers: Experts share insights into how many people it takes to run an IT operation.

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Exclusive

Network World Fusion Radio: The iPod security risk

Last week's Gartner report touting Apple's iPod as a security risk to corporations has drawn a range of criticism and support. Winn Schwartau, president of The Internet Awareness Company and *Network World* columnist, joins us to sort out the issue of security and portable media. Available in Real, Windows Media and MP3. **DocFinder: 2946**

Forum: Is graceful restart the best way to ensure IP reliability?

Ru Wadasinghe of Nortel and Matt Kolon of Juniper debate the merits of graceful restart vs. nonstop routing on page 31 and take their discussion online. Read their thoughts and then add your own in our forum. **DocFinder: 2923**

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Columnists

Nutter's Help Desk

VSATs and cybercafes

Help Desk guru Ron Nutter advises a reader on how to get the most out of VSAT for his planned cybercafe.
DocFinder: 2947

Telework Beat

When you can't work from home, Part 9

Net.Worker Managing Editor Toni Kistner looks at SuiteWorks, which is breaking ground on its telework center and mapping its strategy.
DocFinder: 2948

Small Business Tech

New content management options

Columnist James Gaskin examines Macromedia's new Contribute 3, which includes a high-end Web publishing system.
DocFinder: 2949

HomeLAN Adventures

What's on your home network?

Columnist Keith Shaw looks at a home network survey, which yielded some surprises.
DocFinder: 2950

Seminars and Events

Weekly Webcast Newsletter

Our weekly newsletter delivers information on Webcasts on Network World Fusion — your 24-7 source for solutions and strategies, with links, resources and answers you need. Covering topics such as security, applications and wireless, our Webcasts are focused, single-topic briefings from technology experts. **DocFinder: 2542**

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NewsBits

Powell sees long, hard fight over VoIP

■ Bills to clarify the regulation of VoIP in the U.S. Senate and House of Representatives probably won't go up for consideration in Congress' current session, but the FCC hopes to make progress on the issue by year-end, FCC Chairman Michael Powell told Silicon Valley entrepreneurs and venture capitalists last week. The question of whether VoIP should be treated as a telephone service or as an information service has implications for taxation and issues such as 911 emergency call services and wiretapping. An FCC public comment period on VoIP closed last week. The agency expects to look at the comments and make some decisions on the issue by year-end, although some aspects of VoIP regulation, such as how much a carrier must pay to terminate a call, might not be settled for years. Another VoIP battleground is in state governments, which have fiercely resisted giving up their traditional telecom taxes and regulations when it comes to VoIP, Powell said.

Survey finds tech spending flat

■ The gradual rise in IT spending forecasts has come to a halt, or so says a recent Goldman Sachs survey of 100 senior IT executives. The forecasts flattened out at 2.3% in June after being pegged at 2.4% in April; long-term spending forecasts also remain stagnant at 5.6%, the research firm found in its June survey. Goldman Sachs says the findings indicate IT buyers "may be taking their foot off the pedal heading into midyear." The lack of an increase also shows Goldman Sachs that there is no new "must-have" technology causing IT executives to get out their checkbooks. Despite the lack of growth, the poll found CIOs still plan to spend in the fourth quarter, with 21% expecting to increase IT purchases then.

Symantec buys another anti-spam vendor

■ Symantec last week announced it has acquired TurnTide, an anti-spam company, for about $28 million. Symantec, which recently completed its acquisition of anti-spam vendor Brightmail, said it anticipates having a product available in the fall that uses TurnTide's technology, which works in network routers to block spam. Most anti-spam technology works on the server, gateway or desktop.

"No, the hole in Microsoft's IE is THIS BIG!"

Layer 8

So sayeth Sun CEO Scott McNealy or at least that's the case according to our latest Weekly Caption Contest winner, Robert Lahr of Newport, Pa. You can win, too. Check Layer 8 every Monday for the start of our next tilt. www.nwfusion.com/weblogs/layer8

TheGoodTheBadTheUgly

Nextel's good deed. Nextel announced last week it is working with the National Center for Missing & Exploited Children to offer an Amber Alert service to its customers on an opt-in basis. Today, the service is only available in Pennsylvania, but Nextel has plans to offer Amber Alerts across the country. An Amber Alert is an emergency broadcast to immediately notify a community of the abduction of a child.

Getting under their skin. The crime situation has gotten so bad in Mexico that the country's attorney general last week said he and some members of his staff have had microchips embedded in their arms to ensure them secure access to a new crime database and let authorities track them down if any of them is ever abducted, according to a Reuters report. Let's just hope criminals don't figure out a way to infect the chips with viruses. ➤

Phreak out. Tired of reading about phishing, denial-of-service attacks, viruses and other modern network-based criminal schemes? Well, a New York man has been indicted for allegedly committing a bit of a throwback crime: phreaking, or breaking into, a Verizon telephone system computer used to turn phone service off or on. Phreaking used to be all the rage, but that was back before phone calls could legitimately be had for free or pennies.

Veritas snaps up automation software maker

■ Veritas Software has acquired process automation software maker Invio for $35 million. The privately held company's software lets users improve IT efficiency by automating certain tasks. The process automation technology already is part of Veritas' CommandCentral Service 4.0 product. As part of the deal, the majority of Invio's workforce of 35 will become employees of Veritas.

Netgear recalls defective Ethernet bridges

■ Netgear last week voluntarily recalled 53,000 Wall Plug Ethernet Bridges because of defective plastic casing. According to the U.S. Consumer Safety Commission, which announced the recall, the device's housing can come loose and cause an electric shock if touched. The bridge, model number XW102, was sold between February 2003 and May 2004 for between $50 and $80. The serial numbers of affected devices are XE12A32LB000001 through XE12A32LB005000 and XE12134LB005021 through XE12143LB053586. The bridge connects a PC or other Ethernet device to a home or small-office broadband connection over existing power lines.

Microsoft finds search company attractive

■ As part of its ongoing investment in search technology, Microsoft last week acquired Lookout Software, a two-person company specializing in e-mail and desktop search. Lookout offers a "personal search engine." The software adds a search bar to the Microsoft Outlook e-mail client that lets users quickly and easily search through their e-mail and their computer, according to the Lookout Web site. Details of the transaction were not disclosed. "This was a very lucrative transaction for us, and we're very happy about it," says Eric Hahn, creator of the first Lookout product and founder and financier of the company.

Need for RFID privacy law debated

■ A federal law enforcing privacy rules for radio frequency identification isn't needed because companies experimenting with the technology are committed to protecting privacy, two such corporations told a U.S. House of Representatives subcommittee last week.

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Microsoft technology needs others' help

BY JOHN FONTANA

Microsoft's jump into client inspection and isolation technology will need cooperation with third parties and integration with multi-vendor software and hardware packages for customers to see the full benefits, users and analysts say.

Microsoft last week introduced Network Access Protection (NAP), a set of technologies for creating a standards-based mechanism to verify client desktops are securely configured with updated anti-virus signatures and patches before allowing network access. Microsoft unveiled a set of APIs it hopes to standardize, a Policy Connection Server that will ship next year in an upgraded version of Windows Server 2003 and 25 partners in the NAP project, including anti-virus, firewall, policy management, patch management and network vendors.

"As long as Microsoft just talks about APIs it will help the market, but if they start to talk about and build products, it freezes the market," says Pete Lindstrom, an analyst with Spire Security. "There is enough skepticism around Microsoft security, however, that there should be plenty of third-party software to provide checks and balances."

NAP, which only works with Windows XP desktops, is strikingly familiar to technology Cisco unveiled last year called Network Admission Control (NAC). Initially NAC is used to monitor compliance, but eventually it will evaluate desktops and devices, provide quarantine services, incorporate VPN concentrators and firewalls, and automatically shut down rogue machines.

Check Point, Citadel, EndForce, Enterasys Networks, Sygate and WholeSecurity also have similar technology to control misconfigured or malicious clients. Sygate, EndForce and Enterasys are partnering with Microsoft.

Users say whatever Microsoft's ultimate intentions, the NAP technology must work with more than just Windows-based systems.

"Anything that works on Microsoft servers is all well and good, but that doesn't cover the breadth of our corporate network," says George Defenbaugh, manager of global IT infrastructure projects for petroleum company Amerada Hess in Houston. He says because Microsoft is not considering Linux and Unix platforms, his company is evaluating this type of technology at the router level because those devices ultimately see the entire network.

"But we would like to use Microsoft's Active Directory as the policy repository because it is pervasive on our network," he says.

A battle for control seems to be brewing between Cisco and Microsoft.

"Microsoft has copied Cisco's strategy announced last year, and the enterprise may get stuck in the middle," says John Pescatore, an analyst with Gartner. "They will be forced to interoperate but if it takes the market to force interoperability it will slow down this technology."

Microsoft is in discussions with Cisco but the vendor is not a partner in NAP, according to Steve Anderson, director of marketing for Windows server at Microsoft.

However, Pescatore says Microsoft and Cisco are going in different directions — with the implementation of 802.1X and the Protected Extensible Authentication Protocol — instead of making them compatible.

Anti-virus vendors McAfee, Symantec and Trend Micro have partnered with Cisco and Microsoft.

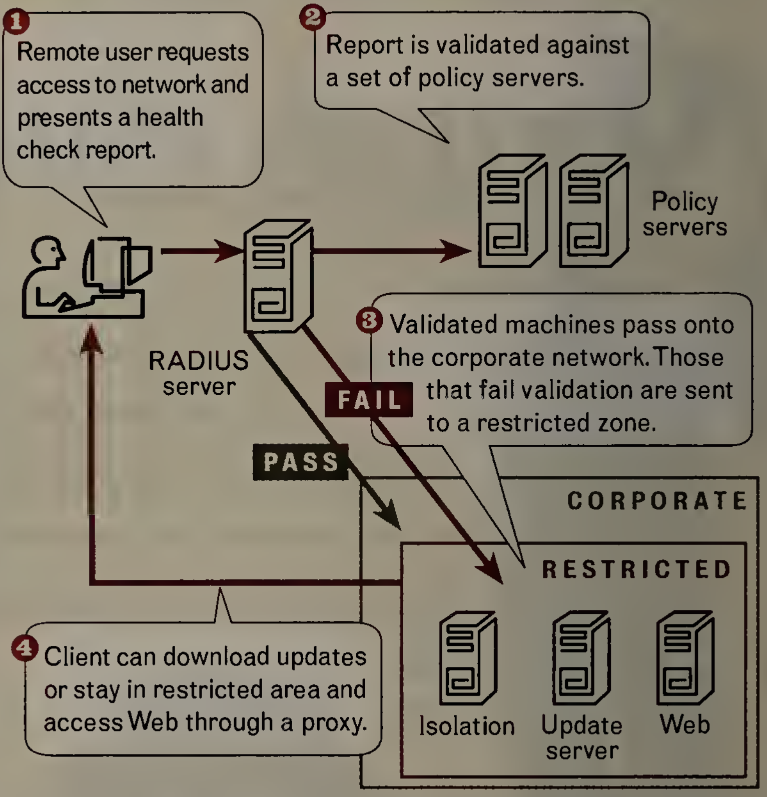
Enterasys' Trusted End-System combines the vendor's hardware with assessment software from Check Point and Sygate. McAfee has worked with Nortel and Check Point to ensure their VPNs can validate that a user has the appropriate anti-virus signature updates before granting access.

The Trusted Computing Group this fall plans to publish a technical specification called Trusted Network Connect for use in multi-vendor environments for compliance checks for virus and patch updates.■

■ Find out if Microsoft has become kinder and gentler, post anti-trust. PAGE 21.

Protecting the network

Microsoft last week introduced its Network Access Protection technology, which is designed to keep infected or misconfigured machines off a network.


❶ Remote user requests access to network and presents a health check report.
❷ Report is validated against a set of policy servers.
Policy servers
RADIUS server
❸ Validated machines pass onto the corporate network. Those that fail validation are sent to a restricted zone.
FAIL
PASS
CORPORATE
RESTRICTED
❹ Client can download updates or stay in restricted area and access Web through a proxy.
Isolation
Update server
Web

Trio ink historic IM partnership

BY JOHN FONTANA

In what experts are calling a milestone in the evolution of corporate instant messaging, Microsoft, AOL and Yahoo formed a partnership last week that will enable Microsoft's Live Communications Server 2005 to work with the IM services offered by the other two.

The three vendors, which have become the cornerstones of consumer IM services, say interoperability among their systems will only extend to corporate use of IM from the LCS platform. It will not integrate their consumer services, which all run on closed networks.

Today, nearly 80% of corporate IM is done over public IM services such as AOL, MSN and Yahoo, exposing companies to security risks, according to the Radicati Group.

Corporations have struggled with security and how to use existing directory name space for IM so they can track users, instead of having separate free-formed IM names that are difficult to associate with individuals.

Those issues, and the concern surrounding the sharing of presence information and buddy lists outside corporate boundaries, are at the heart of the partnership, experts say.

Companies that deploy Microsoft's LCS 2005, which is due to ship by year-end, can add a connectivity pack module, which will ship in the first half of next year, that lets Microsoft IM users swap messages with those using AOL Instant Messenger, AOL ICQ, Yahoo Messenger and Microsoft's MSN service.

AOL has similar integration deals with Reuters and Apple, but this is the first deal with Microsoft since AOL shut down Microsoft's unauthorized attempts to integrate its MSN Messenger with the AOL buddy list. Bill Gates at that time asked the Federal Trade Commission during the AOL-Time Warner merger to require that AOL make its technology compatible with other IM services as part of the deal.

Pricing for those modules was not announced. Users will license the modules, and Microsoft will provide a portion of the revenue to AOL and Yahoo.

AOL says it will act as a clearinghouse for LCS users, providing routing services between users and protocol translation services.

For example, LCS uses Session Initiation Protocol and SIP for Instant Messaging and Presence Leveraging Extensions (SIMPLE), while AOL uses its proprietary protocol called Oscar.

"This is a huge win for the market because enterprise users always lost out," says Robert Mahowald, an analyst with IDC. He says the only caveat concerns companies that were not included — IBM, with its IBM/Lotus Instant Messaging, and Sun, with its Java System Instant Messaging.

An IBM/Lotus spokesman says the company is not seeing customer demand for integration with consumer IM networks. "The demand is to integrate IM with business applications."

Mahowald also says the partnership, which could see AOL backing SIP and SIMPLE, potentially might take some air out of the IETF's other IM protocol, the Extensible Messaging and Presence Protocol.

Despite those issues, some in the industry say the Microsoft-AOL-Yahoo partnership foreshadows an explosion in the use of IM.

"This is the most significant event in instant messaging since it emerged on the Internet in 1996," says Francis deSouza, CEO of IMlogic, which makes software that helps companies manage public IM services use. "We have been waiting for eight years for this and we are at the kink in the curve to explosive growth."

Earlier this year, AOL and Yahoo dropped plans to provide software to support business-class IM. Experts now believe those actions might have been taken as part of the negotiations with Microsoft over LCS interoperability.■

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More online!

Listen to highlights from Mark Gibbs' keynote presentation on strategies for creating a messaging environment that ensures network integrity and user productivity.

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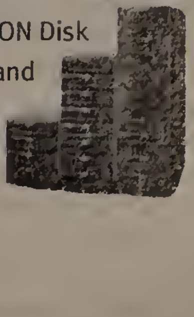

Healthcare braces for federal IT czar

BY DENI CONNOR

The nation's first healthcare IT czar this week is expected to put forth a plan for modernizing the healthcare system — an effort IT professionals say they welcome despite the integration headaches and additional costs it could bring.

Dr. David Brailer, appointed by President Bush in May as National Health IT Coordinator, is set to unveil his plan at the National Health Information Infrastructure conference in Washington, D.C. The plan is expected to outline a method for creating an electronic medical record (EMR) for patients that any authorized individual in any medical organization from any location can view.

"It's something that's long overdue," says Christopher Rose, a network specialist at Liberty Hospitals in Missouri. "One of the largest problems we face in delivering integrated care is that the systems we have don't integrate well sometimes. This causes a lot of spending for interface building."

"At a high level, we still have to see what the requirements are for this plan, the implications on [Health Insurance Portability and Accountability Act], the common languages and how we are going to interface [health information systems]," says Roland Garcia, CIO of Baptist Health in Jacksonville, Fla. "There are still a lot of details that need to be defined."

Dr. David Brailer is the nation's first healthcare IT czar.

The plan is expected to specify how organizations will be able to access patient health information, how that information is transmitted and accessed securely, and how software from different vendors is made interoperable so all information can be viewed from one source.

Madison Mock, CIO for the Medical Center of Central Georgia in Macon, says that setting interoperability standards between health information systems is essential.

"You need to set some standards that everyone adopts," Mock says.

Many standards are already in place. Among the 15 standards outlined by the U.S. Department of Health and Human Services are Health Level 7 (HL7), a method for exchanging clinical data between diverse healthcare information systems, and SNOMED CT, a standardized medical vocabulary.

However, such standards don't completely solve the problem of interoperable health information systems.

"Even the HL7 standard is a little loose — it doesn't cover some of the issues of sending image data," says Mark Moroses, senior director of technical services and security officer at Maimonides Medical Center in New York.

"In imaging there's a push toward DICOM2 systems, but it's not accepted 100% across radiology systems. There's a lot of questions regarding the transmission format and the file format and how you can display the information," he says.

Another issue Brailer's plan is expected to address is physician adoption of EMR.

Moving to EMR for many medical institutions is a generational issue — older doctors are often more comfortable hand writing medical instructions, industry watchers say.

Some physicians and healthcare organizations also are skeptical about the immediate financial benefits of moving to EMR.

"Most institutions have started to [move to EMR] because the savings in creating an electronic medical record drives down [medical] errors, which ultimately drives down insurance costs," Moroses says. "We were able to lower our malpractice insurance and [that] of our doctors because we wiped out certain medication errors."

Not that adopting new health information systems is easy or inexpensive, he says.

"They are million-dollar acquisitions, so companies aren't going to do it just because the government says they should in 10 years," Moroses says. "They are going to wait for the life cycle of their systems to cycle out and for their vendors to make revisions to include the functionality outlined in Brailer's plan. That's not going to happen overnight." ■

Marriage of components called key to security

BY JOHN FONTANA

Regulatory and security pressures are fueling a rush to turn directory, identity and other network infrastructure services into components that provide a reusable security layer as part of a service-oriented architecture.

That reality — its benefits, risks and challenges — will be the major theme at this week's annual Burton Group Catalyst Conference in San Diego.

The idea is that general-purpose infrastructure pieces such as directory and identity services, which companies have been building for the past few years, can be made available as components that exist alongside application components within an SOA. The infrastructure components would make it easier for developers to link application components to security services on a network.

"Infrastructure architects say, 'we built it and they did not come,'" says Jamie Lewis, president of Burton Group. "Application developers say the infrastructure is too hard to use. They say their [integrated development environment] does not allow them to use it. The SOA represents a juncture, an opportunity to change the way we do things and get better security."

Lewis says the emergence of SOA design principles, namely the loose coupling of components, in combination with standard Web services protocols and interfaces, will let infrastructure services, such as access management, provisioning and federated identity management, be available to applications consistently.

"The concept of SOA is providing something that has been desperately needed for a long time, which is a way to have a consistent framework for exposing and using general-purpose infrastructure-level services," Lewis says.

Burton Group calls the concept its Infrastructure Services Model.

"We have seen a lot of progress with the [Security Assertion Markup Language], basic Web services standards and interest in SOA," Lewis says. "But this is far from a done deal."

Still needed is a standard application development framework that infrastructure components can plug into. Also lacking is a more mature lineup of Web services security standards beyond WS-Security.

Another key will be convergence among current efforts to create federated identity standards, namely Liberty Alliance, SAML and WS-Federation, which Microsoft and IBM are developing.

The Catalyst Conference will be the site of a Liberty Alliance interoperability demonstration including implementations from various vendors, but the test won't include WS-Federation implementations.

Lewis also says there will have to be standards for federated trust models and a standard policy language that dictates how users interact with application and infrastructure components.

"This is a policy-driven model," Lewis says. "When you look at SOA, what drives the interaction of components is a well understood, standardized policy framework."

Lewis says it will take time to work out all the issues.

"There is room for cautious optimism about our ability to tackle these problems," he says. "It will be the end of this decade before many of these things are part of the way we do things day to day. But the trends are pretty clear because business needs are forcing the solutions in a way that only strong market demand can." ■

Show preview

Burton Group's annual Catalyst show will feature a slew of announcements about new and upgraded products.

Vendor	Product	What it does
Thor	Identity Manager 8.0	Integration with various Java 2 Platform Enterprise Edition application servers.
	Password Manager 8.0	Self-service reset; password sync with Active Directory.
	Audit & Compliance Manager 8.0	User auditing and reporting.
Oblix	Core ID 7.0	Enhanced with built-in provisioning capabilities.
	Core SV	First Web services management product since acquisition of Confluent.
Courion	ComplianceCourie	Software to adhere to regulatory compliance. Now part of Identity Management Suite 7.0.
ASG	ASG-GlobalTrust	Web access management software.
MaxWare	Dynamic Identity Store	Persistent and virtual storing of identity data.
	Virtual Policy Server	Virtual access to policies from disparate data sources.
Netegrity	SiteMinder	Integrated access management software with Ping ID and Trustgenix.

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Cisco names new CTO, shifts execs

■ BY JIM DUFFY

In an effort to better communicate its technology strategy and directions, Cisco last week named veteran executive Charlie Giancarlo as the third CTO in the company's history.

At the same time, Cisco shuffled some of the executives under the direction of Chief Development Officer Mario Mazzola to better address key markets and customer requirements. Analysts say Cisco customers might gain more input and clarity into the company's directions, but beyond that the reorganization means business as usual.

"You still have the same people running the show," says Dave Passmore, research director at Burton Group. "It's also interesting that they decided to reconstitute the CTO position after four years of vacancy. They [might have] thought it was necessary to better coordinate all of the development activities at Cisco."

Giancarlo had been co-leader of network switching, one of Cisco's core technologies, as well as several advanced technologies, including voice, storage networking and network security. He also is president of Cisco-Linksys, Cisco's home network subsidiary.

As CTO, Giancarlo will be responsible for contributing to and communicating Cisco's technology strategy, and managing Cisco's Global Government Solutions Group. He will continue to be president of Cisco-Linksys and lead the company's voice endeavors.

Veteran executive Charlie Giancarlo (left) last week became the third CTO in Cisco's history. Meanwhile, Cisco reshuffled the executives and groups that report to the company's Chief Development Officer Mario Mazzola (right). For example, the newly formed Security Technology Group now reports to Mazzola.

Serial entrepreneur Judy Estrin was Cisco's CTO from 1998 to 2000, and Ed Kozel was the company's first CTO, serving from 1990 to 1998.

Cisco decided to reactivate the CTO position in an effort to better communicate its business and technology strategies internally and externally, a company spokesman says.

The reshuffling of Mazzola's technology organization includes:

- Jayshree Ullal, senior vice president, will lead the newly formed Security Technology Group. Previously, Ullal ran Cisco's Optical and Broadband Transport group.
- Luca Cafiero, senior vice president, will lead the newly formed Data Center, Storage, Switching and Wireless Technology Group.
- Replacing Ullal in Optical and Broadband Transport is Vice President and General Manager Kambiz Hooshmand. He had shared responsibility for Cisco's Carrier Core Multiservice business unit with Vice President and General Manager Tony Bates.
- Bates now will have sole responsibility for the Carrier Core Multiservice business unit, continuing to report to Prem Jain and Mike Volpi, both senior vice presidents of Cisco's Routing Technology Group.
- Kathy Hill, vice president and general manager, will oversee Cisco's newly formed Mid-range and Stackable Switching Technology Group. Hill had reported to Larry Birenbaum, senior vice president and general manager of Cisco's Ethernet Access group, who has taken a "long planned, well-deserved" sabbatical, the spokesman says. Hill had been vice president and general manager of Cisco's Desktop Switching business unit. ■

What Leucadia's overture toward MCI really means

■ BY DENISE PAPPALARDO

Leucadia National, a holding company, last week was revealed to be seeking approval to purchase at least half of MCI's stock. MCI made this announcement just two days before its stock (MCIP) resumed trading on Nasdaq after a two-year absence. What follows are key questions and answers regarding this move and what it means to MCI customers and the telecom industry.

AT A GLANCE: LEUCADIA NATIONAL

Headquarters:	New York, Salt Lake City
Founded:	1968
Business:	A holding company in several industries, including lending, manufacturing, copper mining and wine making.
Management:	Ian Cumming, chairman and CEO
Revenue:	$511.8 million in first quarter.

What is Leucadia?

It's a financial conglomerate based in New York with interests in a variety of industries, including banking, healthcare services and telecom. The company keeps details about its businesses close to the vest. In fact, the company's Web site is little more than a listing of Securities and Exchange Commission documents. But this isn't the holding company's first foray into telecom. Last year it acquired telecom company WilTel Communications in a stock swap deal valued at about $420 million after it emerged from bankruptcy protection. WilTel operates as a wholly owned subsidiary.

Is Leucadia taking over MCI?

No, but it might try. The company is only seeking federal approval to purchase at least half of the carrier's stock. But approval doesn't mean there will be further action on Leucadia's part. The company might actually do nothing. But several financial analysts have speculated that Leucadia's initiative might open the floodgates to other potential buyers. Some have speculated that an incumbent local exchange carrier or international service provider might also try to make a move to acquire MCI. Those sitting on the sidelines watching how the carrier fared after emerging from bankruptcy in April might now feel compelled to get an acquisition plan in place.

MCI just came out of bankruptcy and has falling revenue. Why is the company viewed as a takeover target?

It's true that MCI's revenue is expected to be down at least $4.4 billion compared with 2003, when the company reported $24.4 billion in annual revenue. MCI, like competitors AT&T and Sprint, is struggling to generate revenue in a fiercely competitive market suffering continued service price declines. That said, MCI has 20 million customers, national voice, data and Internet networks — and cash. Financial analysts have speculated that the company's stockpile of about $4.4 billion might be what's attracting Leucadia.

If Leucadia does buy a controlling interest will that affect MCI customers?

It depends on what Leucadia does with the assets. Some have speculated the company would sell off parts of MCI's business. This would mean uncertainty for customers. Or the company might want to merge MCI with WilTel and integrate MCI and WilTel's disparate networks. Chances are most services would stay intact, especially if those services are IP-based.

If any company buys MCI, it could trigger further consolidation in the industry. While financial analysts say it's needed, consolidation will affect prices. Fewer players will result in price stabilization or increases after nearly three years of declines.

Has Leucadia made drastic changes at WilTel?

From the outside, it appears that Leucadia doesn't have much involvement in WilTel's day-to-day activities. It's even difficult to find references to WilTel's parent company on its Web site. But shortly after Leucadia acquired the company, WilTel expanded its service offerings to enterprise business users after years of only offering wholesale services. This is a significant shift, but it is not clear that the push came from Leucadia. But with MCI in its stable, it would have a company that successfully can support business users. Two of the main criticisms of WilTel's move to offer business services were its lack of brand recognition and its extremely small sales force. Neither can be said of MCI.

Does MCI have a say if Leucadia does make a move to buy more than half of its stock?

In April MCI put a Shareholders Rights Plan in place, which essentially acts as a poison pill to thwart a hostile takeover attempt. If Leucadia, or any other company, acquires more than 15% of the company's stock it can make common stock available to its shareholders at a reduced price. This would make the acquisition more expensive for the acquirer. ■

Corrections

■ The photo that accompanied the story "Siemens exec talks up VoIP" (July 12, page 17) was incorrect. Instead of a photo of Andy Mattes, CEO of Siemens ICN, what appeared was one of Mark Stratton, senior vice president of global marketing for Siemens ICN.

■ The story "Tools help manage domain names" (July 12, page 21) should have stated that Iron Port bought Arcemus.

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NetScout to monitor aggregated WAN links

■ BY DENISE DUBIE

NetScout this week plans to announce an appliance designed to give customers a better view of traffic crossing aggregated WAN links.

NetScout's nGenius IMA Probe works with the company's nGenius Performance Manager software to track application bandwidth consumption, traffic patterns and end-user activities on Inverse Multiplexing over ATM (IMA) networks. IMA lets companies with growing network traffic forestall upgrading to a T-3 line by bundling four to eight T-1 links, but the downside is that it's harder to view traffic patterns on these consolidated pipes.

Jim Mileski, a systems administrator at Financial Partners in Agawam, Mass., has been using the new probe for a few months and says it has made it easier for his team to manage IMA connections used to support the financial outfit's 54 branches.

"We had to put together a bunch of homegrown applications to verify some of the bare-bones data we needed, but for the most part, we lost all visibility of Layer 5, 6 and 7 traffic," he says.

Mileski says the NetScout probe helps him get a better feel for how network links are being used by employees and whether applications are configured correctly.

"We spotted an application making inaccurate SQL queries," he says.

Information the probe collects can be used to help plan where bandwidth needs to be allocated and how to better route application traffic.

The nGenius IMA Probe uses a passive tap to connect to a WAN link and make a copy of the traffic, which is fed to the probe and forwarded to NetScout's nGenius Performance Manager software.

The software, which performs analysis and generates reports, is installed on a dedicated server and can be accessed via a Web browser.

The probe costs about $23,000. The nGenius Performance Manager costs about $50,000. ■

SWsoft offering divvies up server mgmt.

■ BY DENI CONNOR

SWsoft last week unveiled an upgraded version of its virtualization software that gives users more control over server-based resources.

The Virtuozzo software lets customers divvy up a server and create virtual private servers (VPS) that can run multiple instances of the same operating system. In a Virtuozzo environment, each application appears to have its own processes, users and files. Each VPS can be configured uniquely with applications and system hardware and use different instances of the same operating system.

Among the new features of Virtuozzo 2.6 are integration with the company's Plesk Control Panel and new Web-based tools that let administrators start or stop a server, back up and restore a server, and perform other management tasks. Plesk is management software for Windows, Linux or Unix that lets administrators provision applications and operating systems to servers.

Virtual machine technology

A bevy of server virtualization products are hitting the market. Here is how SWsoft stacks up:

Company and product	Operating environments	Function	Availability
EMC's VMware ESX Server	Windows, Linux, NetWare, FreeBSD,	Lets users partition a server and run different operating systems.	Now
Microsoft's Virtual Server 2005	Windows	Lets users partition a server and run different Windows operating systems.	In beta
Positive Software's FreeVPS	Linux	Allows partitioning of a server operating system.	Now
SWsoft's Virtuozzo	Linux and FreeBSD	Allows partitioning of a server operating system.	Now
	Solaris and Windows		Expected in August

Virtuozzo could be beneficial to Web hosting companies because of its ability to support multiple customers on one server, says Jason Bourne, a command, control and communications systems engineer for CompuLogica, a consultancy in Sittard, the Netherlands. He says CompuLogica is beta-testing the most recent version of Virtuozzo.

"If you are a Web hosting company focused on small to medium business segments, you can use Virtuozzo to host Web applications without investing in redundant hardware infrastructures," Bourne says. "You have one physical machine that hosts 50 virtual environments. On each of those 50 environments you can run 100 to 150 shared accounts."

The company also has added a new model for memory management and improved CPU utilization that provides twice as many VPSs and twice the performance of previous versions. With a new Vzcache utility, IT administrators can create templates for common VPS files, establish file sharing, and save disk and memory usage on the server. Further, VPSs can be provisioned and configured with a click of a mouse.

Virtuozzo currently runs on Red Hat, SuSE Linux and FreeBSD. SWsoft says it next month will introduce 32- and 64-bit versions that will virtualize Windows and Solaris server environments. Virtuozzo 2.6 starts at $300 per uni-processor server.

There's lots of interest in virtualized server environments as users try to consolidate server operations and enhance management capabilities. In February 2003, Microsoft acquired Connectix, a company that made a virtual machine environment for Windows, Linux and Macintosh. The company released Microsoft Virtual PC 2004 in December. Virtual PC 2004 lets administrators run multiple Windows operating systems on one workstation. ■

Group tackles interoperability to give MPLS needed boost

■ BY TIM GREENE

Industry groups MPLS & Frame Relay Alliance and the ATM Forum have agreed to become one, a move leaders of the groups say will hasten much-needed Multi-protocol Label Switching services work by focusing more attention on solving specific interoperability problems.

In announcing the marriage, the forums last week also said that the Service Provider Council within the MPLS & Frame Relay Alliance has issued a list of technical issues that it wants resolved. "It's the real-world stuff we have to deal with in a multi-vendor environment," says Doug O'Leary, chairman of the Service Provider Council and the director of enterprise solutions technology for Verizon.

Packet evolution

As new packet technologies come along, the advocacy groups that support them change.

1990 Frame Relay Forum founded.

1991 ATM Forum formed.

2000 MPLS Forum founded.

2003 MPLS and Frame Relay forums merge.

2004 ATM Forum and MPLS & Frame Relay Alliance plan merger.

For example, providers want standards that enable operations, administration and maintenance compatibility among frame relay, ATM and MPLS gear to address practical features such as latency, packet loss and jitter guarantees for carriers to offer to customers. "We want the ability to monitor and maintain the network end to end, not only for our own sanity but for service-level agreements," O'Leary says.

The providers want standards to smooth the interoperability of technologies and to promote interoperability among devices made by different vendors that support the same technology. This interoperability is key to maintaining carriers' basic tenet that they rely on no single vendor to provide their network infrastructure, he says.

Interoperability is key because major carriers have committed themselves financially to MPLS-based networks and must drive them to mature as quickly as possible.

While the yet-to-be-named merged industry group won't have the authority to create standards, its recommendations, known as implementation agreements, will likely become the basis for standards approved by other groups, says Erin Dunn, director of research services for Vertical Systems Group. "The IETF, the [International Telecommunication Union], the [Institute for Electrical and Electronics Engineers] need these feeder groups to send them implementation agreements," Dunn says.

This is even more important as IP-based services cut into frame relay, Dunn says. While frame relay dominates data services in the U.S. — totaling $9.2 billion last year — and is still growing, its dominance is starting to wane, according to Vertical Systems. Carriers need MPLS prepared to handle IP services customers demand, she says.

Despite the march toward MPLS and IP services, frame relay will continue to dominate data services through 2008, Dunn says, but increasingly frame relay services will run over MPLS backbones, which could arguably make them MPLS services. These services also will exhibit features more akin to IP than frame relay, such as any-to-any connectivity without need for virtual circuits. ■

HP Integrity servers are taking off, as are the companies using them.

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RF tools

continued from page 1

physically attached via a wire to the network.

These new products use radios to scan the air, pull data from the radio chipsets in WLAN devices, and expose via GUI displays and alarms what's happening on the Layer 1 wireless connection. As such, they go beyond the capabilities of expensive, specialized and bulky wireless protocol analyzers and spectrum analyzers traditionally used in wireless engineering.

These RF tools let administrators see details such as IP headers, identify new devices that start transmitting, measure the signal strength and radio power settings of access points and client network interface cards, check if Wired Equivalent Privacy or other encryption options are turned on, detect man-in-the-middle attacks and identify electro-magnetic interference.

Much of this data can be passed to enterprise network management applications such as HP's OpenView via SNMP. These RF tools let network managers make changes such as adjust the radio power level, or block access to a rogue access point, or force some clients to disassociate from one access point and reconnect to another to balance traffic loads and improve throughput.

New products

The newest products range from full-blown RF management systems, to offerings sized for either small or large WLANs, to incremental improvements in existing products. The products include:

- Bluesocket's BlueSecure is a stand-alone monitoring system with dedicated sensors that read traffic on 802.11a, b and g networks, and that do some initial data processing. It supports Power over Ethernet.

The ratio of sensors to access points changes depending on variables such as the number of users and the proximity of access points: One sensor for every three to six access points is the rule of thumb.

The BlueSecure Server application, with a GUI, collects, analyzes and presents the data and lets network managers configure alarms. It runs on Windows XP or 2000. The new product for now is completely separate from the vendor's flagship WLAN security gateway.

BlueSecure sensors cost $695. The server software costs $3,000. It is scheduled to be released next month.

- Highwall's Model 500 Sentinel mimics the higher-end Model 1000. The main difference is that the 500 incorporates a single sensor, whereas the high-end model can connect to many, dubbed Highwall Scouts.

The idea is that one Model 500 box can cover all or most of a single office or small business, largely because of the company's own antenna design. Software settings can change the size and shape of the antenna's scanning area, and Highwall says the design boosts the accuracy of identifying the locations of WLAN devices.

The price is $1,500, or half the price of the Model 1000.

- AirMagnet Mobile Suite 4.0's newly incorporated policy manager lets administrators specify rules — such as wireless clients must use a VPN session — and then track network activity against them. The software can capture intrusion attempts, subdivide them into classes of attacks and show their frequency.

Other changes include code to minimize signal fluctuations and track handoffs between access points, both aimed at diagnosing radio problems around wireless VoIP traffic.

Earlier this year, AirMagnet introduced products for monitoring Bluetooth radios. Version 4.0 software runs on laptops or PDAs, which network technicians carry to study RF activity throughout a WLAN site.

The price is $3,500 for the laptop version, $3,000 for the PDA. (AirMagnet Distributed is a sensor-based product with server software and management GUI.)

- Meru Networks is announcing Version 2.0 of its System Director software, which runs on its WLAN switches. The new release includes an updated and more automated user interface for the Meru WLAN management software.

That program reads the radio activity of Meru access points and then automatically configures each of those devices, including radio channel assignments for the entire WLAN, based on one of several WLAN profiles selected by an administrator. The new version ships on the switch product.

- Network Chemistry's recently unveiled RFprotect (see story at www.nwfusion.com, DocFinder: 2955) is scheduled to begin shipping this month, with RF sensors and client/server software designed for large-scale WLANs.

Many of these features are offered in WLAN switches from Aruba Wireless Networks, Airespace and others. These vendors typically use their companion thin access points as the RF sensors: The access point periodically stops transmitting data and momentarily scans for RF signals, reporting data back to a switch-based or PC analysis application. AirDefense is another specialized RF monitoring company.

WLAN enforcement

First Horizon Home Loan (FHHL), a mortgage company in Irving, Texas, bought Network Chemistry's initial product to enforce a "no WLAN allowed" policy at some locations, while the company worked out a WLAN strategy. Later this year, FHHL plans to deploy WLANs at headquarters and some 900 branch offices, and RFprotect will be rolled out with it: Each access point will have nearby a RFprotect sensor.

"We want to make sure that what's occurring on our wireless nets is what we want to occur," says Michael Wallis, FHHL manager of data security. "We want to detect what's going on, and this is one more tool for doing that."

Wallis says that overall the cost of installing a separate sensor network is comparable to the premium he would pay Cisco or Extreme Networks to add WLAN and RF management capabilities into a wired switch infrastructure. "It's about a break-even," he says. "We're already pulling cable for the wireless access points, so we can just run an additional string and put a sensor wherever we put an access point."

Users often talk about what these products let them actually see in terms of the wireless traffic.

"You can see the connected [WLAN] client, the [media access control] and IP addresses assigned, the user log-in," says John Greiner, CTO for Legal Services for New York, a group that offers legal assistance in civil cases to residents of the five New York City boroughs.

"You can see all the access points and how they're operating, and the power levels for the radios," Grenier adds.

Legal Services installed the Aruba WLAN switch and access points initially as a way to monitor internal and external wireless traffic, and to create an open wireless link to the Internet for staff and volunteers.

Greiner says he will expand wireless use over time, and increase the use of Aruba's monitoring features.

The new RF tools offer network executives the ability for continuous monitoring of WLAN.

"You can't predict when a rogue [user] will try to access the net," says Stan Schatt, a vice president with Forrester Research. You can't afford to wait to learn that a user doesn't have an encrypted VPN session. "You need to be alerted no matter when these things happen," Schatt says.

"RF monitoring and management is still an art, not a science," he says. As a result, vendors are scrambling to add wizards and even artificial intelligence to emerging RF products. ■

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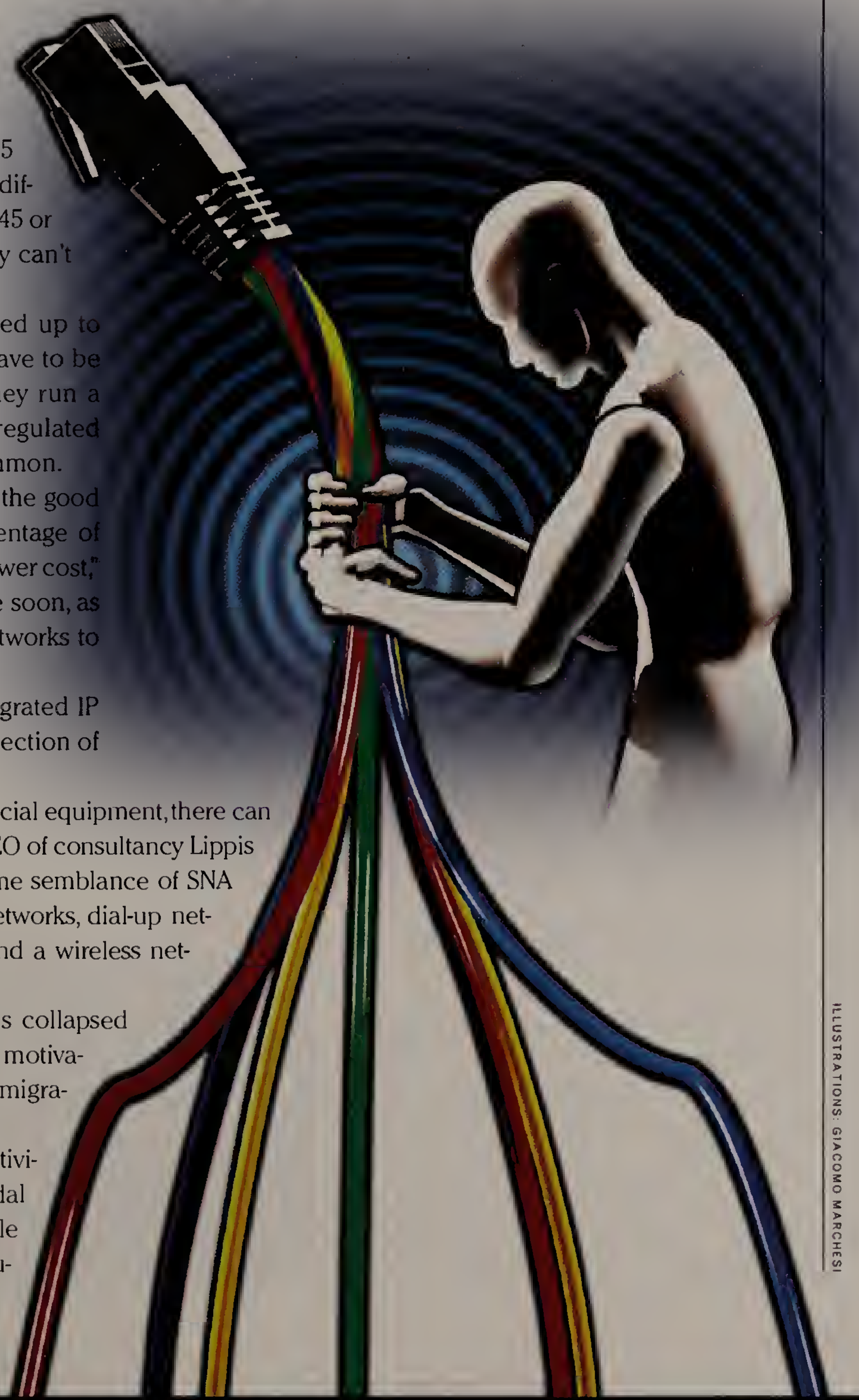
Insights on key issues facing network IT

THE MARCH TOWARD IP INTEGRATION

Work remains, but the path to a single network is getting clearer. ■ *By Steve Ulfelder*



Exempla Healthcare's three-hospital network uses an OC-3 ring to link about 15 buildings in the Denver area. "We run 225 different applications," says Exempla CTO Lots Pook. "And 45 or so have to run on a stand-alone network because they can't ride our IP network."

Even networks within buildings have to be doubled up to meet legacy demands. For example, fetal monitors have to be wired separately using Category 5 cable because they run a 16-volt pulse signal. In the legacy-heavy, highly regulated healthcare industry, such applications are not uncommon.

In its newest facility, Pook's team is getting a taste of the good life, with merged voice and data and a higher percentage of applications running on IP. "I can run that at a much lower cost," Pook says. However, Exempla won't be all-IP any time soon, as long as healthcare companies require specialized networks to meet patient and regulatory needs.

While the industry at large marches toward an integrated IP future, most organizations still have to deal with a collection of legacy networks.

How many? Even when you don't have to support special equipment, there can be as many as a half-dozen, according to Nick Lippis, CEO of consultancy Lippis Enterprises. In addition to voice and IP, there's still some semblance of SNA networks in most companies, say nothing of video networks, dial-up networks, one devoted to alarms and physical security, and a wireless network (albeit one that's typically leased).

While the assumption is that, over time, all traffic is collapsed onto IP, questions remain about everything from the motivations and risks to the impediments to integration. The migration is slow, steady and methodical.

Gartner analyst Bob Hafner says there's a slew of activity around IP migration, but nothing resembling a tidal wave. "Has anybody moved all their networks to a single network? Not yet. We're in the early stages. Key opportu-

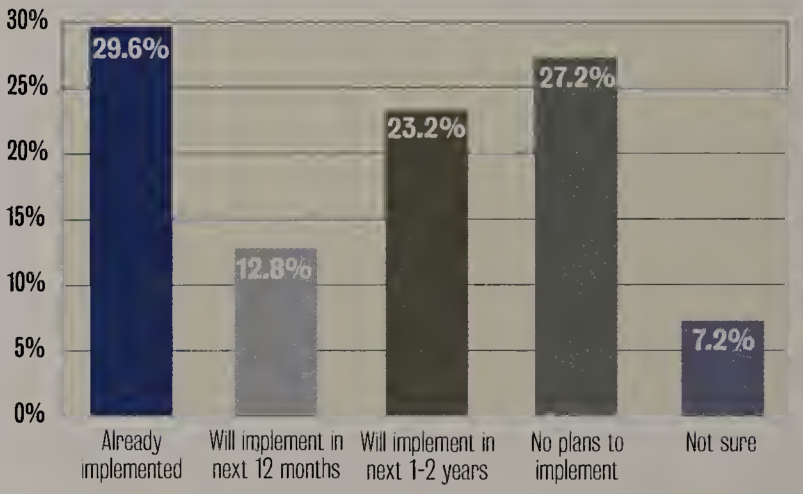
ILLUSTRATIONS: GIACOMO MARCHESI

nities are being addressed, but you don't see an overall strategic plan."

The key opportunity of choice, not surprisingly, is IP telephony. In informal surveys, Gartner finds 80% of companies have some sort of IP telephony program in place,"but it may be anything from a trial with five phones to an entire 2,000-person location," Hafner says.

One big chunk

While companies still are migrating various data networks to the company IP backbone, voice represents a gigantic integration challenge and opportunity. A recent *Network World* survey shows less than a third of companies have installed some VoIP.



SOURCE: NETWORK WORLD 500 SURVEY

Contributing factors

Among corporations migrating to IP, cost is the primary driver. In 2003 when the Cancer Therapy and Research Center installed storage-area networks in its buildings in San Antonio, Texas, CTO Mike Luter opted to link them using iSCSI rather than the more traditional Fibre Channel, meaning the storage traffic could ride the IP network.

Cost was the biggest factor, Luter says. The center's buildings are 22 miles apart, and "to do Fibre Channel, we would have had to put another fiber in. With iSCSI we were able to use existing fiber."

The center installed Cisco SN 5428 storage routers in both locations to consolidate storage resources on shared EMC Clariion arrays, and the 5428s are linked via iSCSI over the IP network.

Because the Cancer Therapy and Research Center is a not-for-profit organization, its purchase of the Cisco gear was closely scrutinized. The reduced cost of ongoing maintenance for a single-protocol network was a major factor in the approval, Luter says. This echoes the sentiments of nearly every IT group considering IP integration: The major appeal is to create one infrastructure, reducing the need for different skill sets.

Some of the cost benefits of IP integration — such as a significant drop in the price of telephone moves, adds and changes when companies adopt VoIP — are well documented. Others might take longer to pan out, but could be more important in the long run. For example, Exempla's Pook says the company's all-IP building frees up a full-time network technician's salary.

The primary reason for IP integration is savings, Hafner says. "We haven't seen any scenarios in which enterprises gained competitive advantage. However, we have seen cases in which it became much easier [for companies] to do things they wanted to do because of integration," he says.

In fact, sometimes the migration to IP is the only feasible way to run needed applications. That's the case at the School District of Lancaster, Pa., where network manager Tim Fake is leading a shift from an infrastructure that can be generously described as piecemeal to pure IP.

With more than 11,000 students, the district has 21 buildings linked via a 100M bit/sec ATM network and a separate voice network. Fake's group is nearly finished with the first phase of a shift to an all-IP infrastructure that will be built around a Cisco Catalyst 6500 in the data center; a Cisco Catalyst 4500 Series for each campus; and Catalyst 2950/3550s in wiring closets.

While Fake welcomes the simplified infrastructure, the big driver for the school district is the ability to offer "apps we just cannot do right now that are really crucial for education," he says, including video on demand and distance learning. Ultimately, Fake says, he will be able to offer VoIP, video on demand, 100M bit/sec Internet access to every desktop and unified security.

In addition to cost and new applications, analysts say senior business management is aiding the migration to IP by calling for things that are enabled by it. "CEOs and CFOs may not understand the network, but they understand the importance of the network," Lippis says.

They see that profit drivers such as improved collaboration, easier access to enterprise applications and better customer support can be "goosed" by network technology, Lippis says. "This drives

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the push toward IP because it affects how a company interacts with its entire ecosystem" of suppliers, partners, employees and customers, he says. "It's easy to see how a single infrastructure makes this doable."

Risks

Regardless of the potential of IP integration, IT organizations want assurance about security and reliability. Is one IP infrastructure even a desirable thing given single point of failure concerns?

Gartner's Hafner says not to worry. Proper analysis of network traffic, followed by appropriate network design, can address such issues.

Kim Perdikou, CTO at Juniper, agrees. "The more traffic there is [running over IP networks], the more analysis is done on the business risk," Perdikou says.

Companies have found a variety of ways to ensure uptime in their integrated IP networks. The Cisco storage routers at the Cancer Therapy and Research Center include a feature that lets the center boot servers directly across the IP network.

According to Luter, that not only improves the organization's patient service, but lets it stick to a demanding schedule that has complex medical procedures occurring every 10 minutes. "We need to get back up as quickly as possible," he says. "With Network Boot, we can be up and running after a server failure in 10 to 20 minutes."

That's a vast improvement over the two to eight hours it would take to manually install an operating system and download up-to-date data onto a new server with tape backup.

Because everyone's network and business drivers are different, there is no central migration plan that companies can gauge their IP integration efforts against. But analysts, users and vendors agree that companies with no IP integration plan whatsoever are lagging behind.

For companies looking for new ways to streamline costs, management and gird for the future, an aggressive move toward IP integration might be an option to consider.

Pure integration probably won't happen anytime soon, but the tectonic plates have shifted and the benefits of integration outweigh the drawbacks, so the march toward integration is better undertaken sooner rather than later.

Ulfelder is a technology and automotive writer in Southborough, Mass. He can be reached at sulfelder@charter.net.

> "HAS ANYBODY MOVED ALL THEIR NETWORKS TO A SINGLE NETWORK? NOT YET. WE'RE IN THE EARLY STAGES." **Bob Hafner, Gartner analyst**

Ups and downs

Enterprise-wide IP integration might be a distant goal, but the advent of the multi-protocol router made it possible for companies to realize a degree of integration by collapsing different types of traffic onto a single backbone. While there are benefits to this level of integration, there are drawbacks.

THE BENEFITS:

- Routing non-IP protocols in IP routers means these protocols are administered by the same IT staff that administers IP protocols, thus reducing duplication of effort and resources.
- IP isn't always the most efficient way for a LAN to operate. For example, Novell NetWare (IPX) and Banyan Vines provide more efficient file and print services for PCs than does IP's Network File System.
- Routing non-IP protocols increases your network's flexibility.
- When push comes to shove, most network protocols share many similarities. If a router can handle one efficiently, it generally can handle others.

THE DRAWBACKS:

- Multi-protocol network design is more demanding. Each protocol has its own rules for routing and address assignment, and these rules often conflict with each other.
- A multi-protocol router is significantly more complex than a single-protocol router, so weaknesses in the implementation of one protocol might affect the stability of others.
- Some protocol families don't scale as well as others and might not work well in a WAN.
- IT groups need an expert in each protocol they route to understand its capabilities and troubleshoot problems.
- Each routed protocol demands its own routing table (and also possibly a dynamic routing protocol), which puts extra load on router equipment.

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Infrastructure

- LAN/WAN SWITCHES AND ROUTERS
- ACCESS DEVICES ■ SERVERS ■ VPNS
- OPERATING SYSTEMS ■ NETWORKED STORAGE
- VOIP ■ WIRELESS NETWORKS

Short Takes

■ **PowerDsine** last week released a six-port Power over Ethernet device for small and midsize organizations. The six-port **3006 PoE Midspan box** sits in front of a standard LAN switch, and provides power and data connectivity to powered end devices, such as wireless access points, IP telephones and IP cameras. The device uses standard 802.3af PoE technology and can work with any standard LAN switch. The box costs $400.

■ **Agere Systems** last week unveiled proposals for a 250M bit/sec wireless LAN specification, which it plans to submit next month to the IEEE 802.11n task group. The proposal is a joint effort by Agere, Intel, Sony, Atheros, Nokia and several unannounced companies that are part of an ad hoc industry group called TGn Sync. The group's purpose is to outline a viable technology that could be adopted by the 802.11n group as the core of a future IEEE standard. Aug. 12 is the deadline for submissions to the IEEE task group. The standards group will hear presentations in September from companies and groups that have made submissions and begin a process of combining and winnowing the proposals. Ratification probably will be sometime in 2006.

■ **Boeing** is expanding its corporate IP telephony rollout and will standardize on **Cisco** IP telephony equipment, the two companies announced last week. The deal announced with Cisco will extend IP telephony to all of Boeing's 150,000 employees in 48 states and 70 countries. In a previous interview with *Network World* (www.nwfusion.com, DocFinder: 2939), Boeing discussed its plan to standardize on Cisco IP telephones and CallManager IP PBX technology, with several pilots running across its U.S. corporation — about 9,000 IP phones total. The Cisco deal will push IP telephony to most desktops throughout the company. Boeing already uses Cisco switches and routers extensively in its enterprise LANs and corporate-wide WAN.

Cisco buys earn mixed reviews

■ BY PHIL HOCHMUTH

Analysts and customers give Cisco mostly passing grades on its acquisitions report card, as the network giant already has bought five companies this year. But none of the acquisitions will drive the company into the groundbreaking new directions Cisco has hinted at, observers add.

Cisco has added advanced routing hardware and software, and remote-office backup technologies in a little over a month with the acquisitions of Procket Networks, Parc Technologies and Actona Technologies. Observers say the recent purchases add some interesting technologies to Cisco's menu. Meanwhile, others say Cisco still has work to do with integrating technologies acquired more than three years ago.

Spending spree

Cisco has purchased several start-up companies in the last few months, adding some new technologies, but mostly augmenting its core routing and security offerings.

Vendor	Acquisition announced	Price	What it does
Parc Technologies	July	$9 million	Carrier traffic optimization software
Actona Technologies	July	$82 million	Remote office storage synchronization
Procket Networks	June	$89 million	Core Internet router vendor
Riverhead Networks	March	$39 million	IDS hardware/software vendor
Twingo Systems	March	$5 million	SSL VPN technology

Cisco made two security-based acquisitions in March — Secure Sockets Layer VPN vendor Twingo and intrusion-detection system (IDS) vendor Riverhead Networks — then stayed quiet until June, with its $89 million buyout of carrier router start-up Procket. The acquisition was different from previous buys this year because Cisco acquired only the intellectual property and a majority of the

See Cisco, page 18

Apple pumps up server OS

■ BY JENNIFER MEARS

Virginia Polytechnic and State University was looking to build a supercomputer and do it without breaking the bank. It already had a small Advanced Micro Devices-based cluster running Linux, but eventually opted to deploy 1,100 of Apple's 64-bit Power Mac G5s early last year. In November, the university's Apple-based TeraScale cluster was ranked the third-fastest supercomputer in the world.

The cluster has been offline for the past few months as the university replaces the Power Mac G5s with Xserve G5s, also based on the 64-bit PowerPC chip designed by IBM and Apple. Assembly has been completed, and final testing is underway. The system is expected to be in production soon, say engineers at Virginia Tech, in Blacksburg.

The university expects a performance increase with the new hardware and also is expecting a boost from Apple's Unix-based server operating system, Mac OS X Server version 10.4, code-named Tiger.

Expected to be released in the first half of next year, Tiger brings more than 200 new features, including native support for 64-bit applications, Ethernet link aggregation that binds Ethernet connections to enable failover and faster network performance, and access control lists that will let users go beyond traditional Unix permissions.

Eye on the Tiger

Apple continues to push Mac OS as enterprise ready. A look at some of the key features that will come with the "Tiger" operating system when it is released next year:

- Native support for 64-bit applications.
- Access Control Lists so that administrators can set more precise permissions for files and network services.
- iChat Server, to set up an internal, open source-based chat environment.
- Mobile Home Directories that store user files and preferences in a network server accessible from anywhere.
- Windows migration tools to make it easier to switch to a Mac OS environment.
- Integrated Xgrid software, making it easier to deploy computing clusters.

Tiger comes after the October release of Mac OS X 10.3, code-named Panther, which has dozens of new capabilities and is aimed at simplifying integration between Macintoshes, Windows and Linux environments.

Apple has the same aspirations with Tiger, adding tools to simplify the migration of user and group account information from Windows Primary Domain Controller into Open Directory, for example. But it also includes a number of updates aimed at boosting performance and shoring up the operating system to support heavy-duty enterprise applications, such as databases and high-performance computing, says Tom Goguen, director of server software for Apple.

"Panther had partial 64-bit support, and Tiger will have full 64-bit support, which is going to affect high-performance computing quite a bit," says Josh Durham, a computer systems engineer at Virginia Tech. "Native support lets people write code that addresses the full amount of memory. Before we had around a 2G-byte per-process limit; now it's something enormous."

Durham says 64-bit support coupled with updates in the Darwin kernel, which is the core of the BSD Unix-based operating system, will help boost performance. "All that should help speed up things quite a bit," he says.

See Apple, page 18

TOLLY ON TECHNOLOGY

Kevin Tolly

Benchmarking WLAN switches: Let me count the ways

Benchmarking new technology is a key element in understanding where it might fit in your infrastructure. While rarely easy, standardization of product features and development of sophisticated test tools by the likes of Spirent Communications and Ixia made testing of LAN switches quite straightforward. With the advent of wireless LAN switches, all that has changed. The nature of the beast (WLAN, that is) is forcing us to cobble together test beds that would make Rube Goldberg proud, and the testing complexity is increased dramatically.

At the core of the challenge, naturally, is wireless. Where a legacy LAN switch was concerned only with data flow between two "like" ports (that is, Fast Ethernet to Fast Ethernet or Gigabit Ethernet to Gigabit Ethernet), the "partner" port in a WLAN switch configuration is the wireless access point plugged in to the switch port. In all cases, that access point implements a shared-use protocol on the wireless side.

So where traditional testing would feed identical traffic bidirectionally through matched ports, that option disappears when the wireless edge is involved. But it gets worse.

Most WLAN vendors implement proprietary tunneling that logically couples the access point into their WLAN switch. Thus, for example, a 64-byte frame that enters a wired Fast Ethernet port destined for a wireless user will exit the Fast Ethernet port on its way to the access point as perhaps a 104-byte Ethernet frame (depending on the vendor's encapsulation scheme). Once received by the access point, the tunneling packet is stripped away and the frame is sent out on the wireless adapter as an 802.11b/a/g standard frame. If it sounds complex, you're getting the picture.

Unlike their wired brethren, WLAN switches can implement enormously complex internal logic. In order to handle roaming, the switches have to keep track of client state, access point loading and more — for perhaps hundreds or even thousands of clients.

Add to this the difficulty of trying to scale wireless testing — interference, number of nodes and the like — and you arrive at an interesting destination. That is, "wireless" testing that doesn't use any wireless.

So in order to prove scalability of WLAN switches, we have found ourselves "force feeding" an asymmetrical stream of traffic through the Gigabit Ethernet ports of a WLAN switch, "simulating" the internal load that would be placed on the switch had it been servicing a huge amount of actual WLAN clients — or so it is supposed.

Because each vendor uses its own proprietary encapsulation protocol and access-point-to-WLAN-switch "handshake" protocol, it is no surprise that "canned scripts" aren't available. Instead we are back to the days of capturing one live session, loading it into the test tool and then using that information to synthesize the large traffic load. Not ideal, but it is the best we can do today.

And, what I've just described is the simple part of the test. When we get to roaming, VoIP and QoS, we face even greater challenges.

With that in mind, let me use this column to gauge vendor interest in an idea. I propose that, this fall, The Tolly Group and *Network World* host a meeting at our lab of WLAN switch and test tool vendors to attempt to articulate the challenges we face. And, more importantly, try to establish at least some consensus to help guide the efforts of test tool vendors to the benefit of all. Interested?

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Cisco

continued from page 17

engineering team from Procket, not the company's customer contracts or debts. Procket competed with Cisco in the core routing market and had gained 2% of the 10G bit/sec router market in 2004, according to Dell'Oro.

Observers also said Cisco's timing was odd because it had just introduced its CSR-1 router, which scaled past any of Procket's products. Cisco said it plucked the Procket assets and brainpower to enhance its own product development and manufacturing processes.

Earlier this month, Cisco acquired Parc, a maker of routing software algorithms that optimize routing paths in carrier Multi-protocol Label Switching (MPLS)-based networks. Cisco paid $9 million for the U.K. firm and said it will integrate the technology with its MPLS Traffic Engineering product line for carriers.

The buy that might prove most significant for enterprise customers, and risky for Cisco, is the $82 million purchase of Actona in June, says Lawrence Orans, principal analyst at Gartner. Actona makes appliances that let companies consolidate servers from branch offices into a central data center. The boxes replicate storage and application protocols on the branch-office end, allowing for faster access to files and better application performance, Cisco says. Cisco will resell appliances based on Actona software and integrate the technology into blades for its families of access routers.

"Server consolidation is an area where Cisco thinks a lot of money will be spent," Orans says. He says Cisco's strategy will be to help corporations bring IT assets in-house and then sell the infrastructure to support large data centers with network and storage switches. The risk, he adds, is that the remote storage network market is not well established. "The companies in that market" — Actona included — "are all start-ups and have few reference accounts," Orans says.

The fact that Cisco is keeping up its acquisition pace is a good sign, one user says. But that user says he wishes the vendor would work harder to integrate the technologies it bought long ago.

"My issues with Cisco are integration, integration and integration," says Scott Pinkerton, network solutions manager for Argonne National Laboratories, a U.S. Department of Energy research center at the University of Illinois. "I have to devote a lot of staff and time doing the kind of back-end integration that Cisco should already have," he adds. Specifically, Pinkerton wants more automated configuration and device awareness among his Cisco IDS, VPN and firewall boxes — all products resulting from Cisco acquisitions over the past decade.

Analysts anticipating Cisco's move into new markets — which the vendor has vaguely hinted at recently — were not overly intrigued by the vendor's recent purchases.

"None of these acquisitions brings Cisco into an entirely new business area," says Cisco watcher Peter Sagawa, a stock analyst with Sanford Bernstein. "They're all pretty small."

Sagawa adds that most of Cisco's acquisitions this year were focused on adding engineering talent or incremental improvements to existing products — such as a Riverhead-based IDS blade for the Catalyst 6500 or Actona-based blades for Cisco branch routers.

At a June Bear Sterns conference in New York, Cisco CEO John Chambers said Cisco is looking into two — and could consider as many as six — new technology areas, but he declined to name them. Cisco today targets six advanced technologies — VoIP, security, storage, wireless, optical and home networking. Cisco has said it will wait until later this year to reveal what these new areas are.

"We have not seen hide nor hare of that yet," Sagawa says, regarding Cisco technology expansion plans, "and none of [Cisco's] recent acquisitions address that." ■

Apple

continued from page 17

Analysts say that this latest release of Apple's server operating environment provides some useful technical updates. They note that the Unix-based operating system is technically strong, comes with integrated open source applications that meet most business demands — such as the JBoss application server — and continues to ease deployment headaches with administrative tools. Xgrid, Apple's clustering software, for example, will be integrated into the Tiger operating system.

"There are a lot of improvements, a lot of good things. And overall I look at [Tiger] and say technically it looks very good," says Dan Kusnetzky, program vice president of system software at IDC.

At the same time, Kusnetzky notes that Apple is barely a blip in the operating system market, falling into the "other" category in a Unix segment that accounted for just 10.6% of overall server operating environments in 2003. Meanwhile, Windows held a 58% share, while paid shipments of Linux accounted for 23% of the worldwide market. Apple also is trying to compete in a 64-bit server market dominated by Sun, which has about 35% of the arena. IBM and HP are behind Sun, with about 12% market share, according to IDC.

"The key challenge isn't technical at this point, it's Apple creating a brand that businesspeople and IT decision makers are aware of, will consider and after considering will choose. It's more than rolling out a technically great product," Kusnetzky says.

Michael Gartenberg, vice president and research director at Jupiter Research, agrees. He says that Apple provides an attractive alternative for corporations both on the desktop and on the server. Tiger includes more than 150 new features, highlighted by Spotlight, a search technology that lets users find anything on their hard drives — from files to e-mail to contact information to images — with a single tool.

Pushing Apple to the top of a corporation's short list when it comes to server and client operating system remains the biggest challenge, he says.

"Tiger is clearly enterprise-ready," he says. "The challenge is getting folks in the IT department to overcome their Macintosh and Apple prejudices from days gone by."

Pricing for the Tiger server will be the same as for Panther: just under $1,000 for unlimited users; a 10-client license costs $500. Subscribers to the Apple Maintenance Program will get the updated operating system as part of their maintenance service. The suggested retail price for the Tiger client operating system is $130. ■

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Short Takes

■ Sybase subsidiary **iAnywhere** has added smart phones based on Microsoft's Windows Mobile software to the list of platforms supported by its **Afaria** software for securing devices in the field. Afaria Security Manager is a client/server product that helps managers secure company data on devices by enforcing the use of passwords and encrypting data. Administrators can protect against theft by setting the software to erase data from a device if a user enters the wrong password several times. Security Manager supports devices based on the Palm, Windows CE, Pocket PC and Pocket PC Mobile platforms. Afaria Security Manager costs $29 per device. The server component costs $5,000.

■ **IBM/Lotus** recently fired another shot at rival Microsoft by adding what it calls an **"Exchange Killer"** to its Express software. The company's **Domino Messaging Express** is the third collaboration tool in the Express line, which now includes 60 separate offerings from across the IBM portfolio such as DB2, WebSphere Commerce, WebSphere Business Connection and WebSphere Portal. Express is the name IBM has given to versions of its products that restrict the number of users to fewer than 1,000 and offer licensing price cuts of up to 40%. The lineup also includes hardware and services. Domino Messaging Express supports the Notes client and Microsoft Outlook, and a variety of Web browsers and standards-based POP3 and Internet Message Access Protocol e-mail clients. The Messaging Express software runs on Linux, Windows and OS/400. Exchange runs on Windows and uses Outlook and Internet Explorer as its client software. Users migrating from a different platform can get Messaging Express for $48 per user, including the server software. For new users, the price is $98 per user. Exchange Server 2003 has both per-user and per-CPU pricing. The Standard Edition costs $699 per CPU with a client access license of $67 per user.

Is Microsoft changing its stripes?

■ **BY JOHN FONTANA**

Now that Microsoft's six-year anti-trust battle is over and the company has hammered out historic partnerships with bitter rivals Sun and Oracle, is the vendor on a path to becoming a kinder, gentler industry titan?

"I'm not so sure kinder and gentler is the starting point to describe Microsoft. It's more like being more pragmatic," says Jonathan Eunice, an analyst with Illuminata. "Pragmatism means companies like Microsoft, Sun and Oracle can somewhat bury the hatchet and work together, but it's certainly not warm feelings all around. It's an enlightened self-interest."

The pragmatism, which has been nurtured in the four years since Steve Ballmer took over as Microsoft's CEO, and the heightened self-interest have been born from changes in the industry and the economy.

"Don't mistake [these partnerships] for altruism. It is forces in the marketplace that the industry has to respond to," says Jonathan Zuck, president of the Association for Competitive Technology, an industry group that backed Microsoft during its anti-trust trial and in May added Oracle to its list of 3,000 members. "It's a maturation of vendors as well as customers. The customers are beyond gee-whiz and now have platforms that need to work together. They are demanding it from the vendors."

Those demands show that end users have soured on the acrimonious battles between Microsoft and its rivals that have stymied interoperability and raised network costs. Microsoft, Sun and Oracle hope their partnerships can correct those trends.

Experts say Microsoft has not so much changed its spots as it has adapted to prevailing attitudes and realized that partners, rivals and end users now share a portion of the driver's seat Microsoft hogged for the past decade.

"The '90s were a great decade for Microsoft in that it set the standard and others followed," says Paul DeGroot, an analyst with research firm Directions on Microsoft. "But with the rise of the Internet and rising concerns over Microsoft's dominance, people saw the other side of the coin in that if they let Microsoft set the standard, it would be hard to have any choices."

It's the waning of that dominance that has Microsoft in a friendlier mood, experts say. The company is partnering and bowing to customer demands because of pressure from Java development tools, alternative operating systems such as Linux, and to the emergence of Web services.

"We collectively think all of this partnering is a good thing," says Steve Linstead, program manager and directory services

See Microsoft, page 22

Unlikely bedfellows

Industry and customer pressure is changing the competitive landscape for Microsoft, which has signed partnership deals in the past few months with its most bitter rivals, Sun and Oracle.

Partner	Deal	Quote of note
Sun	Ten-year collaboration agreement signed in April is aimed at building interoperability among clients and servers; settlement of all pending litigation including $700 million payment by Microsoft to Sun to settle anti-trust issues and a $900 million payment by Microsoft to resolve patent issues.	"We really are partners. It's a strange and unusual thing." *— Scott McNealy, president, Sun*
Oracle	In the first partnership of its kind between the two bitter rivals, Oracle joined Microsoft's Visual Studio Industry Partner program in May. Oracle will offer tools for tighter integration between Visual Studio .Net 2003 and Oracle database software, making it easier to develop and deploy Oracle-based applications on the Windows platform.	"By integrating more closely with Visual Studio, we will make it easier for Windows developers to harness the power of Oracle database." *— Andrew Mendelsohn, senior vice president of database server technologies, Oracle*

Groove release improves collaboration software

■ **BY JOHN FONTANA**

Groove Networks last week added features that move the collaboration tool closer to becoming a universal front end, which lets users access and share data from corporate back-end systems.

Groove Virtual Office 3.0, previously called Groove Workspace, is a client-side technology that makes it easier for users to share files, either on the network or their own hard drive, and work with data offline. Groove also has server software that has been upgraded with Virtual Office 3.0 to make it possible for companies to integrate existing authentication and authorization technology, and deploy auditing features that help users comply with regulatory rules for storing and using data.

Groove also has tuned the software to work in the background more efficiently, improving the performance for replicating data and workspaces.

Groove's software, first introduced in 2000, is a collaboration tool that supports the notion of a workspace. Users of that workspace can share, edit and store data in the workspace and collaborate securely across the Internet.

First linked with the peer-to-peer craze, Groove's offering now is showing its true colors as a collaboration tool, experts say.

"I would describe this software with the word 'chameleon,'" says Peter O'Kelly, an analyst for Burton Group. "Some think of it as file sharing or as an asynchronous tool. Some think of it as Web conferencing and sharing documents online or look at it for its offline capabilities. It is all that and more."

Groove officials say the new features provide more of a "last mile" for connecting workgroups with each other and with back-end systems and doing it with

See Groove, page 22

'NET INSIDER

Scott Bradner

Actual losses or wishful thinking?

The Business Software Alliance is out with its latest guestimate of the loss that software vendors suffered in the past year because of piracy. The study methodology looks reasonable, but the message that the group read into the results and that most of the press accepts is basically flawed.

The BSA is best known for its vigorous enforcement of software licenses by conducting audits of businesses. Based on their press releases, BSA seems to be quite successful in the audit business.

In early July, the BSA released a "Global Software Piracy Study" (www.bsa.org/globalstudy/). The summary says "36% of the software installed on computers worldwide was pirated in 2003, representing a loss of nearly $29 billion." The first part of this claim I can believe, but I rather doubt the second part.

The study was conducted by IDC (a sister organization to *Network World*). The report on the BSA Web page contains a description of the methodology IDC used to conduct the study. It is not as detailed a methodology description as it could have been but, based on what it does say, IDC approached the problem about as well as one can approach a problem where most of the actual data only can be estimated.

But there is no way the data in the report can support some of the things the report says. In particular, there is no data that supports the assertion that the estimated amount of piracy cost software vendors "nearly $29 billion."

There is no real problem with the BSA trying to figure out how much software is installed on computers around the world nor is there a problem with the BSA trying to figure out how much of that software was legitimately purchased. From these two facts the BSA can figure out what percent of the software has been pirated, and it does so. But the alliance cannot just multiply the estimate of the pirated software by the sales price of that software to come up with how much software vendors would have made if there had been no piracy. The BSA also needed to figure out how much of the software actually would have been purchased if the user had to pay the sales price. The BSA doesn't do this, or if it does, the group fails to mention doing so in its report. The $29 billion figure looks impressive, but I expect the actual number is a very small fraction of that.

I can understand the BSA finessing the difference between actual losses and the value of pirated software but I don't understand the lethargy of the media that blindly repeats the bogus claims. The initial report from Reuters (www.nwfusion.com, DocFinder: 2930) described the problem as "the global trade in pirated software" as if someone was making $29 billion from selling stolen software. I hope someday the press will stop taking industry pronouncements at face value and think before they print.

Disclaimer: Even for Harvard, $29 billion would be real money, but I didn't ask its opinion on the reality of the money.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Groove

continued from page 21

greater skill.

"Groove has always met the security requirements we deal with in our intelligence work, and over the years the performance has become faster and requires less bandwidth," says Kevin Newmeyer, program director for the Inter-American Committee Against Terrorism in Washington, D.C.

Newmeyer uses Groove's software to connect intelligence agents working in offices around the world.

He says the performance enhancements help tremendously when dealing with offices in less tech-savvy countries such as Paraguay.

Virtual Office 3.0 includes a new Launch Bar, one location from which to access workspaces, contacts and other activities.

The software also adds a folder synchronization capability that lets users share folders. Different from Windows file sharing, the Groove tool replicates a folder to another user's hard drive, synchronizes versions and allows offline use.

Groove also has beefed up its alerts, letting users set more fine-grained controls and more variables to see when users come online, access workspaces and work with content.

Another major improvement comes in the Forms technology, which Groove has turned into a robust development environment for creating business process applications linked to back-end systems. Version 3.0 ships with 10 customizable forms templates.

On the server side, Groove has added features to its Management Server. This adds support for digital certificates generated by third-party, public-key infrastructure systems so users can integrate Groove's offering into their existing authentication technology.

Groove also is addressing regulatory issues by adding auditing capabilities that capture workspace activity and data to document whom is accessing what information, when and how. The Relay Server has been improved with load-balancing features that improve throughput.

Groove Virtual Office 3.0 runs on Microsoft Windows NT 4.0 (Service Pack 5 or later), Windows, XP, 2000, 98 and ME, and requires Internet Explorer 6.0.

Virtual Office Professional Edition is priced at $179. The Project Edition costs $229, and the File Sharing Edition costs $69. Enterprise Relay Server is priced at $15,000, while the Enterprise Management Server costs $20,000, and the Enterprise Integration Server costs $10,000. ■

In the groove

Groove Networks has added a number of changes to Virtual Office 3.0, the newest edition of its collaboration tool.

- **Web Services API** – Features and functions of Groove, especially synchronization and presence awareness can be integrated with other applications.
- **Net API** – Microsoft's Visual Studio .Net can be used as a development environment for creating custom tools or agents that run within Groove.
- **Forms technology** – New forms capability allows for connection to back-end databases and corporate systems.
- **Folder synchronization** – Users can securely share folders across multiple PCs and across firewalls.
- **Regulatory compliance** – Auditing features capture activity in workspaces and data stored in Groove.

Microsoft

continued from page 21

architect for Johnson Controls, a Milwaukee supplier of automotive parts and building controls, including those for heating and cooling. "If these partnerships work out, it will help our interoperability issues substantially. If Microsoft and the others truly make the customers' needs their focus, that would be the Holy Grail for us," he says. "But words without action are meaningless."

Most of what exists is words in the Sun-Microsoft partnership, which was signed in April and promised to improve interoperability among their products.

Two weeks ago, Sun's Scott McNealy said at the company's annual JavaOne conference that Sun and Microsoft would launch the first phase of their partnership later this summer. "We are going to try to solve single sign-on . . . so users can log in to the net once without having to remember multiple passwords and they can have their authentication travel across Sun and Microsoft environments," he said.

McNealy was short on detail, but rival IBM recently said its single sign-on software would support both Liberty Alliance specifications, which Sun supports exclusively, and WS-Security, which Microsoft supports exclusively. The Sun-Microsoft tandem could move to neutralize IBM's advantage and in the process solve one of their interoperability issues.

Microsoft says its partnership with Sun, which include settlement of their pending litigation, and a similar legal settlement last year with AOL Time Warner, have cleared hurdles that were blocking future product development, according to Microsoft spokesman Jim Desler.

"Since the start of the anti-trust trial we are five years older but 10 to 15 years wiser," Desler says. "Interoperability is more important. We are hearing that from customers."

And feeling it financially, which some end users say is another force acting on Microsoft.

"They are having a harder time making money off their core products so they need to be that gentler giant," says Bruce Elgort, manager of information services for Sharp Microelectronics of the Americas of Camas, Wash.

Microsoft is feeling the financial pinch as year-over-year revenue gains shrink, desktop operating system and Office upgrades slow, and price slashing is used to win sales.

Financial analysts forecast a mere 5% increase in revenue for fiscal 2005 (which began July 1) over this year's estimated $36.5 billion, which is a far cry from the double-digit growth Microsoft has enjoyed. Microsoft is discounting to spur sales including rebates as high as $15,000 to small businesses as an incentive to buy Windows XP, according to analysts. It's also offering a 60% discount on software to Paris in an attempt to cool its interest in open source alternatives.

Microsoft's efforts and its partnership with Sun highlight a battle Microsoft hasn't experienced for some time. In fact, Microsoft lost a contract to Sun, which has long struggled with its identity as a software provider, to supply Allied Irish Banks, Ireland's second-largest lender, with operating systems and productivity software for 7,500 personal computers.

It all adds up to Microsoft having to redefine itself and its relationships within the industry.

"It's a great idea for the vendors to work on tighter integration," says Nelson Ruest, a consultant with Resolutions Enterprises in Victoria, B.C., and co-author of *Windows Server 2003: Best Practices for Enterprise Deployments*. "The industry doesn't benefit from strife. It's better to have saner competition." ■

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XO expands offerings in wake of UNE-P rulings

■ **BY JIM DUFFY**

XO Communications likes to position itself as the nation's largest facilities-based provider of telecom services "focused exclusively on businesses."

But that's not to say it's limited to enterprise businesses. Following recent court decisions that essentially do away with key carrier network access wholesaling regulations, XO is stepping into the breach by launching a wholesale local voice service for competitive local exchange carriers (CLEC).

The XO Wholesale Local Voice Services let service providers offer local voice and integrated services to businesses in 36 U.S. markets. The offering was made possible through XO's recent acquisition of bankrupt carrier Allegiance Telecom. The buyout expanded XO's network presence in local U.S. markets and lets the carrier now offer additional facilities-based services to other carriers looking to provide voice and integrated services locally. XO, which emerged from bankruptcy 18 months ago, closed the Allegiance deal June 21.

Interest in the new XO offering has been high in light of a Washington, D.C., appeals court's decision in March to order an end to portions of the FCC's unbundled network elements platform (UNE-P) policy, says XO CEO Carl Grivner. UNE-P is a regulation in the Telecommunications Act of 1996 designed to give competitors access to the local-access network, which the RBOCs dominate.

Under UNE-P, RBOCs were to sell access to their local facilities to CLECs at government-determined rates in exchange for entry into the long-distance business. Now that UNE-P has been all but dissolved, RBOCs are expected to raise wholesale local facility leasing rates to CLECs, which would raise retail fees.

"It's favoritism towards the monopoly-embedded base," Grivner says. "It's not right in terms of facilities-based competition."

CLEC efforts to overturn the ruling have been blocked — the most recent case being a month ago when Supreme Court Chief Justice William Rehnquist refused a petition for a stay of the court's decision.

Grivner says a lot of UNE-P carriers now are working with XO. The carrier is set to announce one major carrier deal, and expects more big names to sign up for the XO wholesale offering.

"There are more opportunities ahead of us," Grivner says.

Industry experts agree. U.S. wholesale wireline revenue will top $47.9 billion in 2004, according to The Yankee Group.

See XO, page 24

Short Takes

■ **Yahoo** has acquired **Oddpost,** a start-up that provides an innovative, Web-based e-mail service, and plans to use its technology to spruce up Yahoo Mail and other Yahoo services. Like other Web-based e-mail, Oddpost uses a standard Web browser, but its interface functions more like that of a desktop program such as Microsoft Outlook. For example, users can organize or delete messages by dragging them into folders instead of having to reload a Web page each time. The Oddpost service works using Dynamic HTML, XML and Simple Object Access Protocol. It does not use Java and requires no downloads or plug-ins. It currently works only with Microsoft's Internet Explorer browser, although Oddpost had been developing a version for Mozilla.

■ **Sprint** and the **Swedish National Research and Education Network** have reportedly set a world record for sending large amounts of data speedily across the Internet. The Sprint/SUNET team sent nearly 840G bytes of data — the equivalent of 140 DVDs — from a PC in San Jose to another PC in Lulea, Sweden, in less than 27 minutes. The bulk data traveled 10,157 miles across Sprint and SUNET's production Internet backbones at 4.23G bit/sec. The Sprint/SUNET transmission is 12% faster than the previous record held by the California Institute of Technology and CERN using a non-public advanced research network rather than a commercial network.

IPass beefing up policy enforcement

■ **BY DENISE PAPPALARDO**

Global service provider iPass is introducing security features this week aimed at enforcing the corporate security policies of its customers.

The four features fall under a product umbrella called iPass Policy Orchestration. The features — endpoint self-quarantine, dynamic policy retrieval, assessment verification and coordinated enforcement — will be rolled out throughout the rest of the year, says Roy Albert, CTO at iPass.

One industry expert gives the initiative a positive review.

"One of the things that is impressive about this announcement is that [iPass] has spent a lot of time integrating every possible security client you can run on a laptop," says Abner Germanow, program manager at IDC.

The service provider is working with 45 security vendors to better integrate their wares with iPass' Corporate Access worldwide remote-access service. IPass already has integrated the products with its network, but still is working out the kinks of rolling out services based on the technology, Albert says.

The vendors range from well-known to lesser-known organizations and include AppGate, Cisco, Check Point, Internet Security Systems and Mobile Automation. A full list of the security technology partners can be found at www.nwfusion.com, DocFinder: 2944.

Endpoint self-quarantine uses a personal firewall to ensure users' PCs adhere to corporate security policies as they attempt to surf the Internet or connect to their corporate VPN. Users required to have the latest Microsoft security patch to access their VPN might be denied access for not having it, but they still might be able to surf the Internet.

Dynamic policy retrieval lets network administrators make policy changes to how all users access the corporate network directly from their desktop. Today, all policy changes go through the iPass trouble ticket system.

Using assessment, remediation and patch management systems, the iPass assessment verification feature confirms a user's system is up to date and if it's not, the correct security patch automatically is sent to that user's machine. Whereas endpoint self-quarantine merely blocks access if a user does not meet policy, assessment verification works to remedy the non-compliance.

The coordinated enforcement feature specifically addresses VPN access policies at the customer's network, after a user might have already gone through the endpoint self-quarantine process. IPass is working with network enforcement systems such as Cisco's Network Admission Control and Microsoft's Network Access Protection to block access to a VPN if a user's PC is not configured correctly or is infected with a virus. Vendors are just introducing these systems now so this feature likely will be one of the last iPass makes available.

Two existing policy enforcement features, called SecureConnect and continuous policy enforcement, also will fall

See IPass, page 24

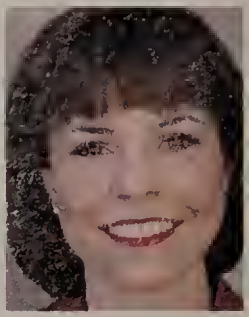
IPass to better integrate security

IPass plans to enhance its Policy Orchestration features in four ways by year-end.

Service	What it does	Using
Endpoint self-quarantine	Restricts PC if it does not adhere to company security policy.	Personal firewall
Dynamic policy retrieval	Automates policy changes for customers.	Active Directory
Assessment verification	Confirms PC has security patches and updates.	Remediation and patch system management
Coordinated enforcement	Confirms VPN access at user's network server.	Cisco Network Admission Control

EYE ON THE CARRIERS

Johna Till Johnson



No substitute for government-funded research

"Houston, we have a problem." Remember those words from Apollo 13? That story still gives me goose bumps — a technically savvy group of engineer-astronauts salvaged a mission gone horribly wrong. What about "Rocket Boys," the story of a West Virginia schoolboy's journey from amateur rocket-launcher to NASA rocket scientist?

This is our cherished science and engineering legend: Talented engineers change the world (usually with the help of caffeine and all-nighters). The story resonates, no matter how often it's retold. Remember "Soul of a New Machine"? The founding of Apple Computer, SAIC, the Internet?

Many of us have come to believe this is the way it always will be: Great engineers will continue to do great things, driving the engine of innovation that fuels the richest economy the world has ever known.

There's just one catch: The fuel supply for that engine is dwindling, at least in the U.S. According to the latest National Science Foundation (NSF) studies, the percentage of scientists and engineering graduates has been declining for decades (see www.nwfusion.com, DocFinder: 2931, for details).

For network specialists, the news is even gloomier. Many of the traditional sources of funding for network research, such as the NSF and Defense Advanced Research Projects Agency (DARPA), are funneling their dollars elsewhere. (I noted in a previous column the critical role both agencies played in funding and operating the early Internet.) According to sources familiar with the NSF, network research is no longer a top priority. DARPA has elected to focus on near-term battle technologies rather than long-range strategic innovation.

You might be asking why any of this is a problem. Why do we need government funding for network research — or any other research — in the first place? Can't industry take up the slack?

Yes, private companies do invest in research and development. Microsoft, IBM, Cisco, AT&T and others operate some of the finest research facilities in the world. But to compete effectively, these companies need to constantly cut out "waste" — expenditures that don't contribute directly to the bottom line. Much great research fits that definition, including the Internet (AT&T actually declined to participate in the early Internet). So relying on private industry to conduct primary research is asking companies to go against their best interests and those of their shareholders — something they're unlikely to do for a sustained period.

Moreover, public research drives broader industry innovation. There's a great economics paper called "The Contribution of Public Science to Industrial Innovation: An Application to the Pharmaceutical Industry" that quantifies exactly how and how long it takes (see DocFinder: 2932).

According to the author, Andrew Toole, industry firms appropriate a return on public science investment in the range of 12% to 41%, with a lag between funding and commercialization of 17 to 19 years. The author concludes that publicly funded research is inextricably linked to industrial product innovation.

Think about it: Today's Internet economy is based on government-funded research done in the 1970s and '80s. But we're not making the equivalent investment today. Coupled with the declining interest of students in pursuing engineering degrees.... Houston, we have a problem.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Verizon Wireless, Lucent strike deal

■ BY GRANT GROSS

Verizon Wireless will spend $5 billion on a variety of network equipment, software and services from Lucent in an agreement announced last week.

Verizon Wireless agreed to buy $5 billion worth of network equipment within six years, although past deals between the two companies have been completed in three to four years, says Debra Lewis, a spokeswoman for Lucent. The companies signed a similar $5 billion agreement in March 2001. The two Verizon Wireless agreements are "among our largest contracts awarded," Lewis says.

With the latest agreement, Lucent will continue to be Verizon Wireless' primary next-generation network infrastructure supplier. The equipment, software and services from Lucent will help Verizon Wireless increase the coverage and capacity of its existing next-generation voice network and high-speed, wide-area BroadbandAccess data network, according to the companies. Under the agreement, Lucent will provide software and equipment from its entire product line, including Bell Labs-developed wireless, optical and data network equipment. Lucent Worldwide Services will perform network optimization, integration and deployment services.

The agreement includes a $525 million contract announced in March, naming Lucent as a key supplier for Verizon Wireless' BroadbandAccess high-speed data network, and it replaces the 2001 agreement.

Gross is a correspondent with the IDG News Service.

XO

continued from page 23

Wholesale services now account for nearly 25% of total U.S. wireline telecom market, the firm says.

At first blush, it would seem that XO is offering competitors access to the very enterprise customers it courts. But such is not necessarily the case.

In some instances, XO's wholesale carriers need to find an alternate wholesale provider to grant access to the customers they already own. Second, there are plenty of small and midsize businesses to go around.

Third, even if a wholesale carrier wins a new customer that XO could have served, XO still gets a share of the revenue from that customer.

XO's wholesale services consist of:

- Wholesale Integrated Access, which provides voice and data over one T-1 to carriers' end users who needs at least six analog or digital voice lines and 512K bit/sec of data speed.
- Wholesale primary-rate interface, which provides PRI configurations to carriers' end users.
- Wholesale Digital PBX, which provides T-1 digital trunks to carriers' end users.

XO Wholesale Local Voice Services are available in 36 markets across the U.S. Each integrated Internet and voice service package is also available with a variety of features, including call forwarding, three-way calling, caller ID, directory assistance and enhanced mailbox options. ■

■ AT A GLANCE: XO Communications

Location:	McLean, Va.
Founded:	In 2000, after the merger of Nextlink and Concentric.
Management:	Carl Grivner, CEO; Wayne Rehberger, COO; Bill Garrahan, senior VP and acting CFO.
Products:	Nationwide OC-192 backbone in 60 U.S. markets offering local and long-distance voice, Internet access, VPN, Ethernet, wavelength, Web hosting, and integrated voice and data services.
Customers:	Businesses and carriers
2003 revenue:	$1.1 billion
Fast Fact:	XO emerged from Chapter 11 bankruptcy in January 2003.

IPass

continued from page 23

under the Policy Orchestration umbrella. Before a user authenticates on the iPass network, SecureConnect checks to be sure that user's laptop is running specific security software, not necessarily looking for a policy, but an application.

IPass' continuous policy enforcement feature ensures that a user will maintain his company's policy while connected. For example, if the security policy says a personal firewall must be on throughout a connection, this feature will disconnect users if they shut down their firewall.

All of the service provider's Policy Orchestration features will be integrated with the iPass Connect connectivity client.

"Making sure that each user connection is safe is quite challenging," IDC's Germanow says. But iPass has done a good job of making sure those connections are safe for the user and the enterprise network to which they connect, he says.

IPass is not the only service provider to offer integrated policy management tools. In February, competitor GoRemote Internet Communications (formerly known as Gric Communications) also announced a comprehensive policy enforcement security system it calls Total Security Protection. Fiberlink also offers its remote-access customers a brand of integrated policy enforcement. All three offer remote-access services to enterprise users worldwide.

IPass says its Policy Orchestration features will be rolled out over the next several months. The service provider says it is in the process of determining which features will be integrated with its standard Corporate Access service and which add-on services will cost more each month. ■

Net.Worker

■ PRODUCTS, SERVICES AND STRATEGIES
FOR TYING TELEWORKERS TO THE ENTERPRISE

Q&A Congress fights telework malaise

Frustrated by the government's dismal telework performance, Rep. Tom Davis (R-Va.), chairman of the House Government Reform Committee, recently held a hearing to get at the cause. At the hearing, he quizzed federal agency leaders, as well as Sun and Cisco, about their successful telework programs. Net. Worker Managing Editor Toni Kistner quizzes Davis on his plans for holding agencies' feet to the fire.

The Office of Personnel Management report states federal agencies are at 14% compliance with the telework mandate. But nearly 70% of federal teleworkers reside outside the Washington, D.C., area. How do you plan to emphasize telework in the D.C. region specifically, where continuity of operations is most critical?

We may legislate, put some specific mandates on these areas to fulfill the guidelines. There's a greater opportunity for telework in D.C., because these are mostly front-office people, they're not in the field. We're very disturbed by the fact that managers don't seem to get this.

You mean drafting legislation that withholds $5 million from each agency until it complies?

Yes. We're talking about money because that's what agencies understand.

What other measures are you considering?

Tougher reporting requirements. Rather than have agencies say who's eligible to telework, let's have them come up with who is ineligible and explain why. That changes the whole dynamic.

The departments of Homeland Security and Justice argue that sending employees home compromises national security. But aren't such agencies — by virtue of their central location — making themselves more vulnerable to terrorist attack by not teleworking?

That's the whole point. They're sitting there with a big bull's eye on them. All of our records are wrapped up there; it's a one-stop shop for terrorists.

Do you have specific plans to target high-security agencies?

The answer is yes. You're going to see more aggressive legislation on this. We're reviewing a whole lot of options. We're very frustrated with the level of compliance — or rather, non-compliance — the number of excuses, limitations and ineligibilities that keep coming up not to do this.

Rep. Danny Davis (D-Ill.) is proposing telework pilots. But pilots have been around for years. Are they necessary?

I'm not going to oppose them, but we're way beyond pilots at this point. The bigger question is, how do we change the managerial culture so we can do what the private sector is doing and make telework more widespread? It'll help us in recruiting and retention, productivity and pubic safety, as we discussed.

What did you learn from Sun and Cisco at the hearing?

That the government can give you a million reasons not to telework.

What are your next steps?

To draft legislation — in this Congress or not, I don't know. We're increasingly frustrated, especially those of us who represent the Washington region. We see the traffic mounting every day. Federal workers can't get back and forth to work. The bottom line is, these managers don't trust the people who work for them.

That's government culture?

It is, and it's not good for employees. Who wants to work for an employer who doesn't trust you, who's got to watch you?

Why not let people work from home when it makes sense, when their kid has an early ballgame, or how about when they have a cold and don't want to come in and give it to everybody else?

I'd argue most employees could take a paperwork day every week or two.

That's right. There is time you need to catch up. And for a lot of people in the Washington suburbs, really wired areas, you have everything you need right at home, and the government's not paying for it. ■

Arm twisting telework

Section 359 of Public Law 106-346 requires that 100% of eligible federal employees telework by the end of 2004. With agencies at only 14%, Congress is taking steps to force compliance.

Rep. Frank Wolf (R-Va.) introduced an amendment to the Commerce Department's spending bill that would withhold $5 million from the budgets of the Departments of Commerce, Justice and State until they comply with the telework mandate. The bill also withholds funds from the federal judiciary, the Small Business Administration and the Securities and Exchange Commission. It recently was approved in the House.

Rep. Tom Davis (R-Va.) plans to draft legislation that will extend the Commerce Department's spending bill amendment to all Federal agencies.

Rep. Danny Davis (R-Ill.) introduced the Continuity of Operations Demonstration Project Act, which authorizes at least two 30-day pilots to evaluate whether telework can keep the government running in an emergency. The pilots would rely on existing policies and funding.

Short Takes

■ Another sign the government is getting serious about meeting telework goals is an announced partnership between the **Environmental Protection Agency** and the **Office of Personnel Management.** The alliance will focus on improving education for telework managers and employees.

■ A recent **2Wire** poll of 400 broadband subscribers found that 56% plan to check e-mail every day on vacation, 69% would work from home if they could get wireless access from the yard and 55% consider checking e-mail the most important part of their morning, ahead of breakfast and reading the paper. When asked how they feel when 'Net access is disrupted, 60% said they feel agitated, 30% bored and only 2% reported relief.

■ **Linksys** recently introduced two devices for smaller offices. An 802.11g Ethernet bridge with a five-port switch connects a small workgroup network to a larger one and adds wired devices to a wireless network. A four-port VPN router supports 30 VPN endpoints, and includes a SPI Dynamics' firewall and dual Internet ports for load balancing and redundancy. Each costs $199.

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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

802.11h helps WLANs share spectrum

■ **BY MICHAEL SEE**

Because 802.11a wireless networks operate in the 5-GHz radio frequency band and support as many as 24 non-overlapping channels, they are less susceptible to interference than their 802.11b/g counterparts. However, regulatory requirements governing the use of the 5-GHz band vary from country to country, hampering 802.11a deployment.

In response, the International Telecommunication Union recommended a harmonized set of rules for WLANs to share the 5-GHz spectrum with primary-use devices such as military radar systems. Approved in September, the IEEE 802.11h standard defines mechanisms that 802.11a WLAN devices can use to comply with the ITU recommendations. These mechanisms are dynamic frequency selection (DFS) and transmit power control (TPC). WLAN products supporting 802.11h will be available in the second half of this year.

DFS detects other devices using the same radio channel, and it switches WLAN operation to another channel if necessary. DFS is responsible for avoiding interference with other devices, such as radar systems and other WLAN segments, and for uniform utilization of channels.

An access point specifies that it uses DFS in the frames WLAN stations use to find access points. When a WLAN station associates or re-associates with an access point, the station reports a list of channels that it can support. When it's necessary to switch to a new channel, the access point uses this data to determine the best channel.

The access point initiates a channel switch by sending a frame to all stations associated with the access point that identifies the new channel number, the length of time until the channel switch takes effect, and whether or not transmission is allowed before the channel switch. Stations that receive the channel switch information from the access point change to the new channel after the elapsed time.

An access point measures channel activity to determine if there is other radio traffic in the channels being used for a WLAN. The access point sends a measurement request to a station or group of stations identifying the channel where activity is to be measured, the start time of the measurement and the duration of the measurement. The station performs the requested measurement of channel activity and generates a report to the access point.

TPC is intended to reduce interference from WLANs to satellite services by reducing the radio transmit power WLAN devices use. TPC also can be used to manage the power consumption of wireless devices and the range between access points and wireless devices.

An access point specifies TCP support in the frames it generates to WLAN stations. These frames also specify the maximum transmit power allowed in the WLAN and the transmit power the access point currently is using. The transmit power used by stations associated with an access point cannot exceed the maximum limit that the access point sets.

When a WLAN station associates with an access point, the station indicates its transmit power capability. The access point uses this data about the stations associated with it to determine the maximum power for the WLAN segment. This means the radio power in a WLAN segment can be adjusted to reduce interference with other devices while still maintaining sufficient link margin for operation of the wireless network.

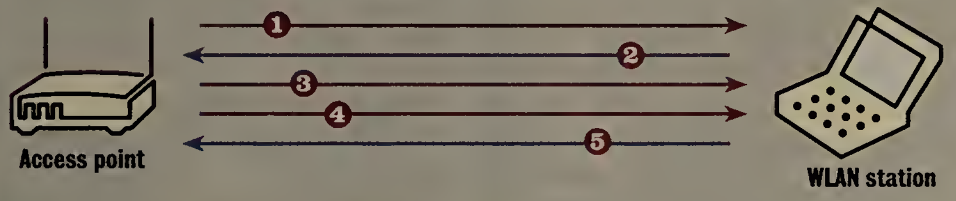
Frames also are sent between the access point and the stations to monitor the signal strength of the wireless network. The access point can dynamically adjust the radio signal strength, if necessary, to maintain wireless communications.

The original motivation for the DFS and TPC mechanisms defined in 802.11h ensure a standard method of operation under the regulatory requirements governing the 5-GHz band, which will spur deployment of 802.11a wireless networks. Along with meeting regulatory requirements, DFS and TPC can be used to improve the management, deployment and operation of WLANs.

■ **HOW IT WORKS**

802.11h

The 802.11h standard defines mechanisms to ensure 802.11a wireless networks operate according to regulatory requirements for the 5-GHz spectrum. One such mechanism is dynamic frequency selection, which lets an access point and associated WLAN stations dynamically switch to another channel to avoid interfering with military radar or other WLAN networks.



❶ An access point announces that spectrum management is required in the frames that advertise the existence of the WLAN.

❷ The WLAN station includes the operational channels it supports in the frames it sends to request an association with the access point.

❸ The access point responds with a message completing the association process of the WLAN station and the access point.

❹ After determining that it is necessary to change the operating channel for the WLAN segment, the access point sends a message to all associated WLAN stations announcing that the WLAN segment will switch to a new channel, the time when the change will take place, and the new channel.

❺ At the designated time, the WLAN station switches its channel of operations to the new channel.

See is CTO of the network infrastructure business unit of Alcatel's Enterprise Solutions Division. He can be reached at michael.see@alcatel.com.

Ask Dr. Internet

By Steve Blass

Is it true that the GNU Compiler Collection (GCC) includes a compiler for Java that can produce Windows executable binary programs from Java source code?

The GCC's GNU Compiler for Java (GCJ) can create binary executables from Java source code, and these can then be run on systems that don't have a Java Runtime Environment. The Abstract Window Toolkit and Swing are not completely implemented but it is still possible to create programs with GUIs using IBM's Simple Widget Toolkit (SWT), which is part of the Eclipse platform. To get started with GCJ on Windows, download the GCC/GCJ 3.4 package (see www.nwfusion.com, DocFinder: 2940 for details). Download the GCC/GCJ 3.4 bundle rather than the 3.5 bundle, as the 3.5 bundle does not have the SWT dll required to run applications. To build the set of examples included with the GCC/GCJ bundle you also will want to download the file MSYS-1.0.10.exe from the download section of www.mingw.org so that you can use Make to automatically build the programs. Information about using GCJ with Eclipse and Ant rather than Make is available at DocFinder: 2941.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Networking your garden

This week, a summer distraction and complete geek-out as we network our garden irrigation system.

The problem is that standard irrigation timers just do not cut it when you have a large garden. We have such a garden with 29 separate watering zones, and we wound up with two clusters of timers in two buildings separated by some 200 feet, one cluster in a barn and the other in a basement.

This might not sound too problematic until you notice in passing that this flower bed needs more water or that shrub looks a little dry, or rain makes it necessary to skip all watering for 24 hours, or a high wind makes it pointless to have sprinklers on at all.

Any of these critical horticultural situations can turn into an inconvenient trek to the barn or basement only to find that the timer you want is in the other location. Then when you do find the right one you have to fool with a horrible user interface. The obvious solution is networking.

We looked around for remote controllable irrigation systems, and not wanting to spend thousands of dollars on commercial products designed for watering hundreds of acres we concluded that an X-10 product might help.

X-10 is a simple, low-speed, power-line network technology that Gearhead covered a few years ago (www.nwfusion.com, DocFinders: 2934 and 2935). While it is not the most robust or high-performance network offering it is cost-effective (cheap) and adequate for this kind of application.

After much research, we also settled on a neat device called the Rain8 from WGL & Associates (see details at DocFinder: 2933). This is a tiny box with three connectors: one for programming; one for connecting to a separate power-line interface module that converts the X-10 signals into a custom serial interface for the Rain8; and a terminal block with eight connections (one for valves or "zone," one common for all valves and two for the 12-volt power supply).

WGL provides a utility for programming the Rain8 that lets you set the X-10 codes and maximum run time for each zone and two optional codes that trigger running the zones in sequence with a separate list of zone run times. There are two further optional codes: one that disables the unit and another that skips the next sequenced run (in effect, a 24-hour delay function).

We found a box to house the equipment (three Rain8s, power supply and power-line interface), wired it all up (see DocFinder: 2937 for some pictures and links to all of the components), and tested it by replacing the timers in the barn.

With a stand-alone X-10 controller plugged in next to the unit, there were no problems. But from the computer room being controlled by a computer through a power-line interface, nothing worked.

We assumed the problem was signal degradation because of the power circuit being about 200 feet long. But after buying a new power-line interface for the Rain8 setup and trying the same on the computer, installing an X-10 signal booster and an X-10 phase coupler, and after much fooling around, we still couldn't get it to work.

It turned out that simply moving the computer's power-line interface from a socket powering several computers to another a dozen feet away with nothing plugged into it fixed the problem. Such are the curiosities of the X-10.

So what software to drive the Rain8 setup? The second Gearhead story we mentioned above covered the HomeSeer program, and after much research, we concluded that there is nothing better. There are some interesting alternatives, such as the freeware MisterHouse (DocFinder: 2938), but in terms of ease of use and power, HomeSeer was the hands-down winner.

HomeSeer really is a fine piece of engineering with a good interface and good documentation, and can run scripts written in VBScript, JavaScript and Perl, which has led to a large collection of free and commercial add-ons. HomeSeer offers an optional telephone interface that provides a multi-box voice mail system, and with the right hardware HomeSeer provides a Web interface so any computer in the house can trigger or change the irrigation system. We are modifying it so we can walk around the grounds triggering zones using a wireless connection from a PDA.

One Rain8 sprinkler controller, 24-volt AC 300ma transformer, RS232 cable, data cable and a PSC05 power-line interface costs about $100; additional Rain8s cost about $80. HomeSeer costs about $150.

Next week, back to business. Meanwhile, what have you networked? Tell gearhead@gibbs.com.

Cool Tools

Quick takes on high-tech toys

By Keith Shaw

Move over, iPod!

The scoop: Pocket Video Recorder AV420, from Archos, about $550.

What it does: The AV420 combines the features of a digital audio player such as Apple's iPod, video recorder features such as the TiVo's, and a large handheld hard drive for storing digital photos and other files. The device comes with a docking station that lets users record from any video source (through composite audio/visual cables) onto the AV420.

Music and other files can be transferred to the AV420 through a USB 2.0 cable from a PC or Macintosh. You can watch videos on the 3.8-inch color LCD screen, or connect via the docking station to a TV and watch them on a larger display. You can listen to music via the external speaker, or connect headphones to the AV420. The storage capacity is impressive — the version we tested had 20G bytes of space, which translates to as many as 80 hours of content. A larger, 100G-byte version also is available (about $800), which offers up to 400 hours of content.

An optional FM radio and remote-control accessory let users listen to FM radio broadcasts and record songs directly to the device.

Why it's cool: The AV420 truly becomes a handheld digital entertainment center when you combine the video player, TV (or other video source) recorder, color screen and photo-viewing applications to the standard digital audio player.

We've seen the evolution of products from Archos, and they've generally impressed us over the years. While Apple gets raves for its iPod, Archos continues to come out with products that impress.

The AV420's interface is super-intuitive. Navigating around the menus is easy with its five-way navigation buttons. File folders containing sample music, video and photos come pre-installed, so when you attach it to a computer, you easily can transfer digital files into the folders.

The addition of the color screen and video player does drain the battery; we were able to get about 3 hours of active video playing before the battery died; you should have enough time to watch a movie or listen to songs on a plane ride, but make sure you bring the charger along so the video player is powered up for the return trip.

The hardest part of connecting the docking station to our TV for video recording was untangling all the wires attached to the station. Once connected, recording a video segment involved selecting the video recording application and choosing an option to record. If you want to record a TV show that isn't on yet, you can set up the recording by inputting the time, show duration and channel.

If you need to have the system change the channel, the AV420 includes an infrared cable that connects to the docking station, which you connect to your cable box.

Using the recording application reminded us of the early days of the VCR, when you needed to remember when certain shows were on and on which channel. If you've been spoiled by TiVo and other personal video recorders, that let you pick a show from the guide and click one button, you might be put off by having to input data manually.

Fortunately, there are enough TV listings sites on the Internet that will tell you when shows are on. We hope a future software upgrade will let you connect the AV420 to a PC and download your TV listings directly to the device, but for now we're left with the manual method.

Grade: ★★★★½ (out of five)

Shaw can be reached at kshaw@nww.com.

The AV420 gets high marks as a handheld digital entertainment center.

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Face-off Is graceful restart the best way to ensure IP reliability?

Two industry experts debate the merits of graceful restart vs. nonstop routing.

Yes, Matt Kolon, Juniper

There are many facets to the problem of giving an IP network greater than 99.999% availability, including those related to network design, hardware redundancy and technology choices. But accepting that router control plane failures will occur occasionally, and providing a comprehensive and forthright way to handle these events, is a fundamental step toward five-nines availability. Graceful restart of router control protocols is the best way to accomplish this.

The exact mechanisms by which graceful restart functions are protocol-specific and, therefore, defined in separate IETF documents for each of the routing and control protocols in question. The general idea of their operation, however, is similar: allow a controlled pause in the control plane of a router during which traffic forwarding continues, with no need to cause a "convergence event" that puts the network as a whole into an unstable state. This is possible because modern router designs separate the functions of routing (the control flow of destination information) and forwarding (the actual data flow of packets through the router). While it used to be true that loss of a control connection meant that forwarding had stopped, the separation of routing and forwarding functions allows adjustments in, changes to or even restarts of the router control plane during normal operation — leaving the flow of customer traffic unaffected.

Graceful restart lets a router that might need to drop its control plane connections to its routing peers for a short time alert those peers of this capability proactively at the time of initial session establishment. Graceful restart also provides for standard protocol action to resynchronize the control connections or escalate the situation to a general forwarding failure if hardware or other failures require it.

Graceful restart provides several clear advantages over proprietary methods that seek to provide router availability. These include:

- Simplicity. The mechanisms by which graceful restart operates are easily understood by anyone with a knowledge of routing protocols.
- Vendor-neutrality. Graceful restart is defined in IETF documents that any vendor can follow and implement, and thereby be assured of interoperability.
- Transparency. Graceful restart does not require proprietary changes to protocol operation, and control plane failures can be modeled in deterministic fashion, with a clear sense of what will or will not happen in a given failure scenario.
- Addressing of software failures. When a software bug causes a router failure, graceful restart mechanisms let the router "start fresh" with a new instance of the routing tables and the configuration state that derives them.

Graceful restart provides a comprehensive, vendor-neutral and transparent mechanism for handling control plane issues. Service providers and vendors that seek to serve them are all best served by implementing it, because letting failures be handled without interrupting forwarding is a pragmatic step toward a truly nonstop control plane.

Kolon is a senior technical consultant at Juniper. He can be reached at matt@juniper.net.

No, Ru Wadasinghe, Nortel

Protocol extensions are being developed to increase IP reliability. But by themselves, they are insufficient to fulfill the expectation for five-nines IP nodes that can support mission-critical, real-time voice, video and data in addition to lower-priority traffic. Devices entering this converged market must provide cost-effective reliability for many deployment scenarios — especially at the network edge. For non-redundant configurations supporting consumer-grade services or multi-vendor environments where some products don't support non-stop routing, graceful restart can help improve reliability. However, to provide true five-nines reliability, nonstop routing is the best solution.

With graceful restart, each node depends upon all its neighbors running compatible protocol extensions. This becomes even more problematic if the neighbors are part of different autonomous systems.

In addition, the IETF's graceful restart drafts are still not stable. Once stability is reached and vendors support the same drafts, their implementations might differ, resulting in costly and time-consuming testing and provisioning.

Despite safety mechanisms embedded in graceful restart, it is still susceptible to black holes and forwarding loops occurring because it operates on the premise of forwarding traffic without the control plane being operational.

Nonstop routing is a self-contained nodal capability that does not require protocol extensions and thus does not suffer from interoperability issues. It lets the node recover by itself without imposing requirements on other nodes, simplifying network engineering, testing and operations while reducing complexity and costs.

Non-stop routing provides for much faster recovery and convergence times because the routing protocols do not fail during control card switchovers. This greatly minimizes the time stale routes are in the forwarding table and the amount of control traffic, producing a more stable network topology.

Potential scalability and mirrored bug concerns with nonstop routing can be dealt with by processing and parsing only appropriate state information to the back-up processor, removing lock-step redundancy so that the specific combination of software bug and state are not replicated.

Even in the event of a systematic failure, nonstop routing is at least equivalent to graceful restart. If continuous corrupted control-packets cause a failure, nonstop routing and graceful restart would have the same effect — except that nonstop routing would not have to wait for any potential timeout period before re-routing around the failing router.

Graceful restart is good for some deployment scenarios but insufficient for many. Nonstop routing doesn't require complicated interoperability that creates higher operations costs or risk compounding outages by acting inappropriately to legitimate failures beyond the control plane.

Wadasinghe is senior product manager, multiservice edge, at Nortel. He can be reached at wadasin@nortelnetworks.com.

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More online!

Log on to Network World Fusion to voice your opinion. Face-off authors Matt Kolon and Ru Wadasinghe will add their thoughts to the discussion.

DocFinder: 2923

ON TECHNOLOGY

John Dix

Security vendors peer inside

There are hundreds of vendors in the security market, and the bulk of them are focused on the edge. But some of the newer entrants are looking inside because they recognize that 1) despite all of our perimeter defenses, bogeys still get through, and 2) compliance, acceptable use and other new requirements demand more stringent controls.

Lancope is targeting the first concern, and Reconnex, which we will look at next week, is focused on the latter.

Lancope offers an appliance called StealthWatch that constantly compares network activity against a normal baseline. That baseline is achieved by placing sensor appliances at critical points in the network — for example, at Web servers, VPN access points and core routers — and starting an auto-learn process.

Once the baseline has been achieved, the watching begins, says Chris Hovis, vice president of marketing and business development. Each packet that goes by is collected, organized into flows, and then analyzed and mapped to policies.

Policies, Hovis says, can address everything from who can talk to whom, what ports and services can be accessed, and minimum and maximum traffic thresholds. Customers then use StealthWatch to establish a behavior concern index for each host, with things like syn floods and scanning activity ranking high.

When nefarious activity is noticed, StealthWatch can sound an alarm, automatically mitigate the situation on a zone-by-zone basis (it is integrated with Cisco routers, Cisco's PIX firewall and Check Point firewalls), or suggest a course of action that must be approved by an administrator.

On the face of it, the StealthWatch approach makes sense because studies have shown that up to 50% of today's security events go undetected by signature-based systems such as firewalls.

The problem with signature-based systems, Hovis says, is you're using prior knowledge to look for bad stuff that is always changing. "With StealthWatch, we are constantly aware of what is happening vis-à-vis a baseline of what should be happening.

"Customers are saying, 'I'm not going to prevent everything, but when stuff does happen, I want to quarantine it to as small a part of the net as possible.' When someone breaks in, we lock all the doors and windows in that room," he says.

Prices for StealthWatch start at about $20,000. The company, which has 65 employees and 75 customers, is privately funded and just raised $12.5 million in the first quarter.

Next week, a look at Reconnex's approach to security.

— John Dix
Editor in chief
jdix@nww.com

opinions!

Worrisome thought

Regarding Mark Gibbs' Backspin column "Worry, worry, worry, worry" (www.nwfusion.com, DocFinder: 2924): Why in the name of sanity would anyone build a security or financial product and base it on Internet Explorer, the world's most unsecure browser? Because doing so is easy and cheap? Or maybe because they can then do things on the user's computer that the user doesn't know about and/or wouldn't approve of?

Anyone that builds into their operating system a program that can install, run, delete, copy, rename, send and receive files on the local computer, and then has that same program able to browse about on the public network, should be shot. Those that are dumb enough to use it should be whacked over the head with a wet noodle.

Dan Renner
President
Los Angeles Computerhelp
Glendale, Calif.

Outgoogling Google

Regarding Dave Kearns' column "Microsoft over Google? Keep searching" (DocFinder: 2925): Microsoft has, for the past several years, established a program the company calls "eating our own dogfood" — using its own software internally, before releasing it to the public. This practice has made Microsoft's products considerably better than they otherwise would have been. Currently, Microsoft is "dog fooding" search technology internally that smokes Google. To diminish Microsoft's capability to accomplish market dominance when the company sets its mind to it is to forget every market in which Microsoft plays.

Also, comparing Windows file system search to Web search is apples to oranges. When Longhorn is released, this won't be the case, but as Kearns says, that will be a while. Until we have WinFS, file system searches will continue to be terrible. On the Web front, however, I recently attended a meeting at which Microsoft's search product manager estimated we'd see Microsoft's victory over Google in public release within nine to 12 months. Judging by Google's recent attempts to diversify its product and services, I'd say Google knows about Microsoft's timetable as well.

Brian Tinkler
Vice president, business development
Serlio Software
Milwaukee

Kearns replies: If Microsoft introduces a faster search engine, I'll be one of the first to sing its praises. But the evidence I've seen says Microsoft can't do it. Still, I'll be happy to be proven wrong.

Foiling DidTheyReadIt

Regarding Mark Gibbs' Gearhead column "How DidTheyReadIt does it" (DocFinder: 2926): As an e-mail administrator for a midsize government organization, I don't welcome the idea of a service such as DidTheyReadIt.com. At first, I thought of several ways to prevent our proxy server from allowing access to didtheyreadit.com (all browsers here must go through a proxy to reach the Web; thus, while being rendered, the HTML messages also are subject to the proxy's rules). However, I could see some holes in that approach. Then a colleague said, "Why not simply put didtheyreadit.com in your DNS, pointing at a bogus address?"

Brilliant! If the image can't be resolved to the server holding it, tracking doesn't work.

Jim Michael
IS manager
City of Chesterfield, Mo.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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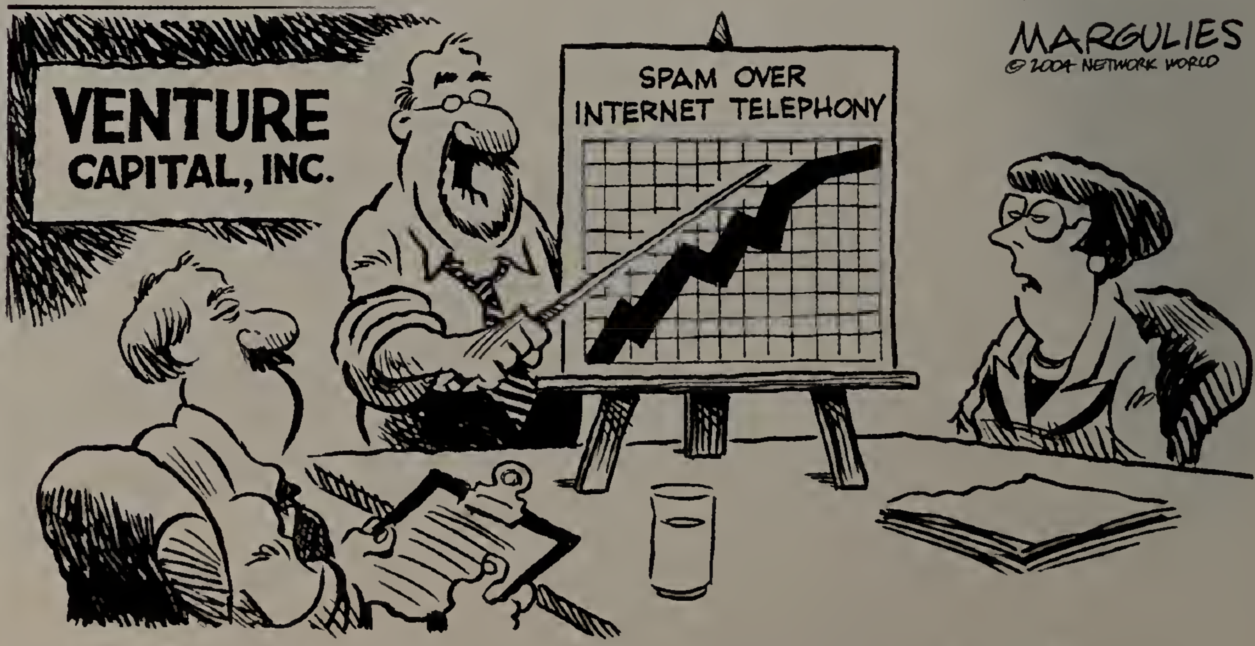

"VoIP is definitely a technology that's going places... just look at the volume of spam it's starting to attract..."

STRATEGY SESSION

Jeff Kaplan

The failure of trade shows

The cancellation of this year's Comdex show, along with the downsizing of the NetWorld+Interop conference, is another nail in the coffin of IT mega trade shows. Many view the cancellation as inevitable, given the cataclysmic effects of Sept. 11, 2001, on the travel industry and the lingering uncertainties within our own industry that have kept discretionary spending down on both the enterprise and vendor sides. However, the real culprit might be an older, more insidious issue: the failure of vendors to effectively capitalize on industry events from a marketing perspective.

The original premise of the trade show business was to create a meeting place for vendors and customers, where customers could learn about the latest technology trends, see the latest products and interact with the leading vendors. Over time, shows became more like bazaars, with vendors handing out T-shirts and trinkets to compete for attention rather than promoting their products' business benefits.

Now that focused events and the Internet have become convenient and effective alternatives for learning about technology and comparing vendors and products, few people are shedding a tear over the demise of the mega-conference. But a surprising number of vendors still are making the same mistakes that led them to believe trade shows were an ineffective marketing tool.

First, many vendors don't properly identify which events are most likely to attract their target buyers. Nearly every smart event organizer will claim to be targeting CXOs or IT decision-makers. But few vendors ask for more specific demographic information to ensure the attendees match their ideal buyers.

Second, many vendors fail to create an integrated plan that establishes key marketing themes and messages, details complementary marketing campaigns and develops marketing material that can be utilized beyond a single event.

Third, and most amazing, many vendors fail to follow up on the leads they generate at events. How many of the companies that have swiped your card at a trade show when you visited their booths actually have contacted you after the event?

Given their dismal track record, it's no wonder many vendors have given up on traditional trade shows. In addition, vendors' marketing failures as conference sponsors have caused enterprise decision-makers to doubt the real value of these events.

Customers clearly have voted against bad conference marketing tactics by staying away from mega trade shows. They now are looking for more focused venues — online and in person — where they can get more industry insight and intimate understanding of the best technology strategies and products to meet their specific business objectives.

Now the task for industry marketers is tougher. With their budgets razor thin, they must sort through myriad marketing alternatives to determine which promotional vehicles — industry conferences, corporate events or Webcasts — can attract the most qualified leads. Picking the right venue is only a small piece of the puzzle. The cornerstones of success will be better marketing preparation and follow-up.

Kaplan is managing director of THINKstrategies, a consultancy in Wellesley, Mass. He can be reached at jkaplan@thinkstrategies.com.

Vendors' marketing failures as conference sponsors have caused enterprise decision-makers to doubt the real value of these events.

REALITY CHECK

Thomas Nolle

Mixed messages on wireless value

AT&T sells its wireless business to Cingular. Qwest sells its wireless assets to Verizon. Sprint says wireless is a big part of its profits. Wall Street analysts are forecasting a shift of capital expenditures (capex) from wireline to wireless. Big players are bailing out of wireless, but other players are happy to pick up their assets. If wireless was clearly the way of the future, everybody would want to be into it. Why the diverse view of wireless importance?

To begin with, wireless voice is under a lot of price pressure because of competition. To make traditional cellular/PCS wireless service profitable in the near term, you'd need other offerings you could leverage in service bundles, a valuable home territory to exploit and a credible national name. Qwest probably made the right decision based on these factors. The old US West territory has fewer subscribers than the other RBOC regions and big open spaces that are expensive to cover.

Verizon has a different dynamic. It's targeting the mobile worker who spends time on the East Coast but also occasionally treks out to Big Sky country. For the business phone user, coverage is everything, and Verizon has about 45% of the big enterprise headquarters locations in its home territory. Verizon can milk the mobile market in a way Qwest never could. The big RBOCs can justify wireless as a hedge against losses in traditional wireline voice, but it's how the interexchange carriers view wireless that exposes the real issues for the future.

MCI has yet to express a wireless strategy, and AT&T now is committed to wholesaling. Sprint has the most interesting wireless vision. It has championed the picture phone and, more recently, a chance to shoot video clips. In the near term, this plays to the youth market, but in the long term Sprint's strategy might be a hedge — although a very different one from the voice hedge the RBOCs see for wireless.

Could wireless be a strategic hedge that wireline broadband services can't be made immediately profitable? For all the enthusiasm about the Internet, it's yet to be a profit center for a major carrier. What then creates the profit in broadband? Sprint might be holding a place for itself in broadband wireless, expecting that mobile applications for broadband will be, like voice, more profitable than their wireline equivalents. Instant messaging is profitable in wireless and not in wireline. Same with picture- or video-mail services. Perhaps Sprint is looking beyond these obvious plays — which, after all, weren't obvious at first.

The big question with wireless remains whether there is any real application beyond voice. If not, the competitive forces that have largely destroyed voice profits in the wireline arena eventually also will destroy wireless profits. Most of the current wireless capex Wall Street is talking about is directed at 3G broadband applications. That investment won't pay off if consumers only want to exchange Short Message Service messages and photos.

The answer to the question "What's next after voice?" might be developing in Europe. T-Mobile, working with Nortel, is deploying a customized data services offering over wireless that will be trialed in the U.K. and, if successful, elsewhere. While the deal doesn't explain what customized data services will be offered, it indicates that carriers and vendors are working to address profit sources for wireless in the future.

What might the services be? For the enterprise user, access to corporate applications is clearly a mobile service option, and Web services standards could help enable those kinds of enterprise applications for wireless data. It's also true that video calling is actually more credible for wireless than for wireline because the tiny screen makes high-quality video a non-issue, so bandwidth consumption and video compression are less of a problem. MP3 music delivery is clearly a wireless application, as is interactive multiplayer gaming.

It's unlikely that wireless will displace DSL and cable modems as the key delivery platform for broadband, but it's very possible it will have a bigger role in the broadband future than we think.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

It's unlikely that wireless will displace DSL and cable modems as the key delivery platform for broadband.

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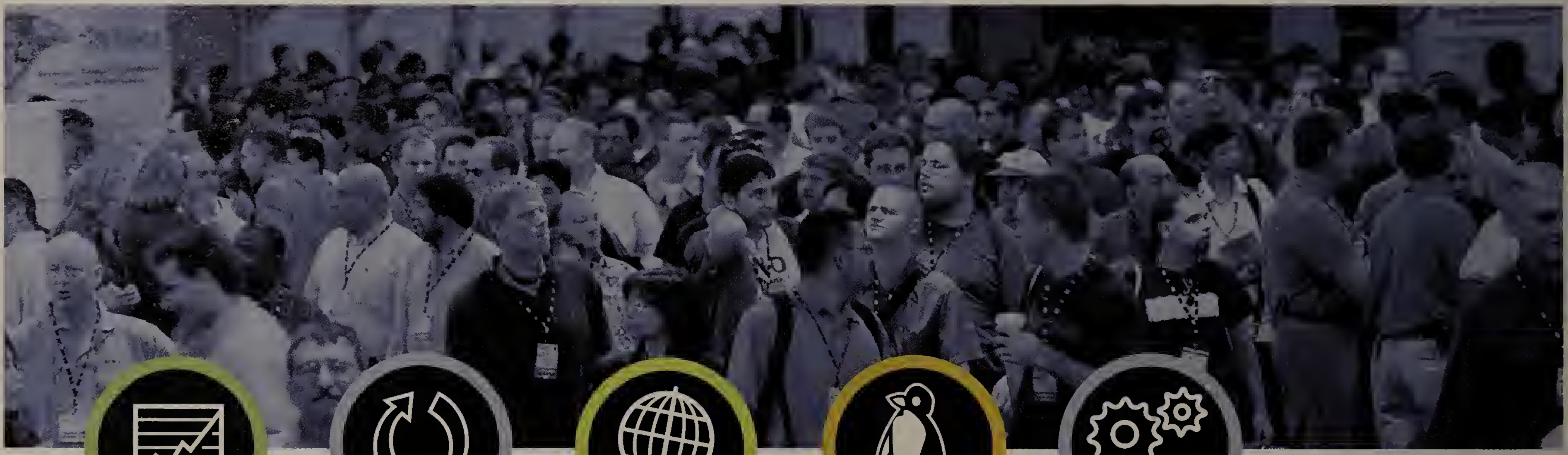

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Survey on Carriers

Major carriers score high on network performance, but billing woes and installation delays open the door for second-tier providers.

Service providers fall short on service

■ **BY ROBIN GAREISS**

Customers think highly of the reliability and performance of carrier networks, but aren't so thrilled with the level of customer service, especially when it comes to billing and management tools. That leaves the door open for second-tier service providers such as Broadwing, Masergy Communications, Savvis Communications and XO Communications, according to a Nemertes Research survey of about 100 major U.S. and global companies.

While companies are trying to reduce the number of carriers they deal with because managing those relationships is time-consuming, 26% of respondents say they still use between 10 and 20 carriers. In some cases, they use different carriers for different services to leverage better pricing or features; in others, they must use multiple carriers to cover all their locations.

AT&T is the most-frequently used carrier, followed by MCI, Sprint and Qwest, according to survey respondents. Many organizations are sticking with these carriers in large part because of concerns about the financial viability and geographical coverage of the newer providers.

But other customers are becoming increasingly interested in the second-tier providers who offer higher bandwidth for lower costs, and have built their networks with the latest technology, so they don't have the operational issues larger providers have.

What's more, the newer players go the extra mile in customer service, some IT executives say. "I'm seeing second-tier carriers succeed by providing better customer service than their Tier-1 counterparts," says John Fulmer, senior technical director of DigitalNet, a consulting firm that uses XO and and uses services from the major carriers. "I don't think customers fear using a Tier 2 as much as they used to."

The survey data backs up the notion that customers are not pleased with the customer service they're getting from their incumbent carriers.

Respondents rated the carriers on the following factors: network reliability, network performance, technology, cost, customer service, ease of use, management tools, service-level agreements (SLA), installation time and billing.

On a 1-to-5 scale, where 1 is unacceptable, 2 is poor, 3 is fair, 4 is good and 5 is excellent, the overall scores for reliability and network performance were high. Sprint received the top score for reliability at 4.38; followed closely by MCI at 4.18; Verizon, BellSouth and Qwest at 4; AT&T at 3.94; and SBC at 3.75.

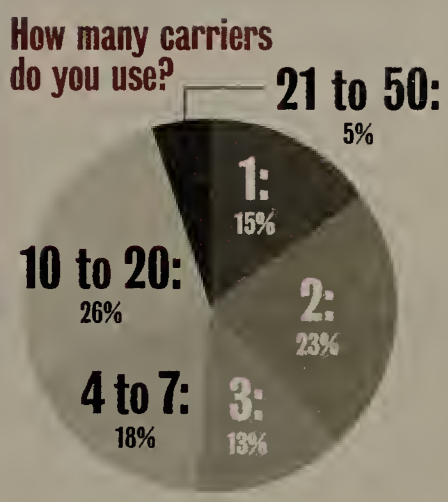
Sprint also was tops in network performance at 4.22, followed by MCI at 4.09, Verizon at 4 and AT&T at 3.90.

But when it came to a customer service feature like billing, the scores were far lower across the board. Sprint again was first at 3.38, followed by SBC at 3.25, BellSouth and MCI at 3, AT&T at 2.78, Qwest at 2.3 and Verizon at 1.5.

Billing has long been a problem for the big carriers. This is the area where just about everyone has a story and a complaint. The only place we found some positive feedback about billing was with the second-tier carriers, in particular Masergy.

The problems range from readability to inaccuracy to volume. The bill "comes every single month, and literally, a guy comes off the back of a truck with a dolly of boxes. It takes four full-time people to go through them," says the CTO of a global financial services company that uses AT&T and MCI who asked to remain

> *"I'm seeing second-tier carriers succeed by providing better customer service than their Tier-1 counterparts."*
>
> **JOHN FULMER** | Senior technical director of DigitalNet.



How many carriers do you use?

AT&T tops the field

Respondents were asked to name their primary carriers.

CARRIER	%
AT&T	58
MCI	43
Sprint	33
Qwest	30
SBC	25
BellSouth	20
Verizon	13
Equant	10
Internap	10
Level3	8
UUNET	5
Infonet	5
XO	3
BT	3
Masergy	3
Broadwing	3

> *"The speed of installation? They all stink at that. There are always a million and one excuses."*
>
> Communications director at a government agency

Nemertes Research **Survey on Carriers**

anonymous. "It's a mess. They have to come up with a whole new billing scheme. These guys don't believe in consolidation. Every node is a different bill and page. I don't know how to describe it."

Companies consistently say they spend 10 to 40 hours per month assessing and correcting phone bills. That's led many IT executives to demand better online billing systems — which, so far, they haven't received.

Installation deprivation

Installation time is also an area where the carriers have room for improvement. Qwest scored the best at 3.7, followed by Sprint at 3.5.

The amount of time companies wait for circuit installations varies depending on the geographical location and the provider. The range for a new T-1 line is four to 12 weeks, with the average at about six weeks. T-3 lines take 12 to 16 weeks. And faster, more complex optical services or diverse lines can take up to 24 weeks. As one university CIO points out, these time frames are after the paperwork is completed, which can take up to two weeks.

One would think that the size of a company should dictate the response time for installations. But we didn't find this to be true. "The speed of installation? They all stink at that. There are always a million and one excuses," says a communications director for a government agency who asked not to be named. "Circuit installation is terrible. It takes 45 days for a T-1. T-3 is a complete mystery — 120 days would be good; 180 is average."

The lowest overall rankings are for management tools. The only carrier to achieve higher than a "fair" rating is AT&T, with 3.17. The others were sub-3.0, and Verizon was all the way down to 1.75.

The tools are unsophisticated, IT executives say. Simply finding out basic information, such as discard eligibility, is difficult from some carriers, respondents say. Complaints about MCI in this area were particularly prevalent. MCI has merged so many companies together that it's become difficult to offer management tools over various operations support systems and networks.

Before the dot-com meltdown, the carriers focused heavily on Web-based management tools. But now, IT executives say that their efforts have all but vanished in this area, and they'd like to see some functionality — that's somewhat affordable, too.

Carriers are becoming more focused on managed services, but they need to offer more than an all-or-nothing approach, says David Moy, technical services manager for G. James Australia, which is a privately owned group of glass and aluminum companies. "We're looking for a more complete service from carriers, but now, you either buy bandwidth or they run the whole network. There's no in-between," he says. "There are points where you don't want to manage the network, but you don't want them to do everything. We run 24-7, but we don't like to wake someone up when we have a problem at 2 a.m."

Many companies say that managed services work well for them, but some said the services didn't meet expectations. One manufacturer tried to use AT&T's managed services for 18 months, "but it flat out didn't work," says a network manager who asked not to be named. The company switched to Sprint and pays Visual Networks to monitor the network using Visual's DSU/CSUs at remote sites.

MCI focuses on customer service

When it comes to customer service, MCI scored the best, followed by Sprint. Verizon had the lowest score. Customers complained that basic areas, such as getting responses to questions, take way too long. The carriers simply aren't as organized as they need to be, customers add.

MCI's high ratings reflect growing efforts to make up in customer service what the company has lost in reputation because of its financial scandal. Repeatedly, IT executives said they have seen a significant improvement in MCI's response time, trouble-shooting and proactive notification of problems.

Of course, the customer experience depends heavily on the quality of the account team. Companies with experienced, stable account representatives who understand their business are happy with their provider. The survey found that there are pockets of good and bad service. One of the carrier's biggest challenges — if not the biggest challenge — is to provide consistent, solid services.

Optimization gap

Where all the carriers fall short is helping customers with network optimization. Rarely do the carrier sales reps call customers to let them know when a circuit is reaching capacity, for example. "You'd think they'd want to tell me when to order a new circuit — it's more business for them," says John Wade, CIO of St. Luke's Healthcare in Kansas City, Mo. "But they don't. And it makes no sense."

Even though costs aren't dropping the way they used to, participants rated carrier costs relatively favorably. Sprint received the best ratings for cost with a 4.1. Verizon scored the lowest, with a 3.0. That said, 41.7% of respondents cited "reduced costs" on their vendor/carrier wish list. Basically, they're saying that costs are generally fair to good, but they could be better.

The same holds true for SLAs. The general view is that they're needed to keep the carriers on their toes, but companies must take the time and spend the money to negotiate more stringent SLAs than the standard ones that carriers offer. Generally, the SLAs cover uptime, mean-time-to-repair or respond, latency and packet loss. However, some companies negotiate very tough financial penalties — tied to business loss — to guarantee top performance and attention of top executives.

Sprint and Qwest score the highest in this area, with a 3.5 and a 4.0, respectively. The lowest ratings are for AT&T, 3.13, and Verizon, 3.0.

The bottom line is that companies are looking for more innovation, better management tools and improved customer service from carriers. And they're willing to give second-tier carriers a shot.

Gareiss is principal research officer at Nemertes Research, which specializes in quantifying the business impact of emerging technologies. She can be reached at robin@nemertes.com.

IXCs vex LECs

Traditional long-distance carriers (AT&T, Sprint, MCI) scored higher as a group than traditional local exchange carriers.

	Reliability	Network performance	Technology	Cost	Customer service	Ease of use	Management tools	SLAs	Installation times	Billing	
AT&T	3.94	3.90	3.70	3.55	3.50	3.21	3.17	3.13	3.00	2.78	
MCI	4.18	4.09	3.18	3.73	3.83	3.10	2.89	3.40	3.00	3.00	
Sprint	4.38	4.22	3.70	4.10	3.80	3.60	2.78	3.50	3.50	3.38	
Average	4.17	4.07	3.53	3.79	3.71	3.30	2.95	3.34	3.17	3.05	**3.51**

	Reliability	Network performance	Technology	Cost	Customer service	Ease of use	Management tools	SLAs	Installation times	Billing	
BellSouth	4	3.6	2	3.2	3.4	3.2	1.75	3.5	3	3	
Verizon	4.0	4.0	3.3	3.0	3.0	3.3	2.3	3.0	3.0	1.5	
SBC	3.75	3.25	3.25	3.5	3	3.5	2.5	3.5	3	3.25	
Qwest	4	3.7	3.5	3.7	3	4	2.3	4	3.7	2.3	
Average	3.94	3.64	3.01	3.35	3.10	3.50	2.21	3.50	3.18	2.51	**3.19**

One caveat: Respondents admitted being tougher on AT&T than other carriers because it has long been the "gold standard."

CLEAR CHOICE TEST

Security event management software

NetIQ's Security Manager does an impressive job sorting through security

■ BY MANDY ANDRESS, NETWORK WORLD LAB ALLIANCE

The power and complexity of NetIQ's Security Manager 5.0 — the latest version of the company's security event management product — is well masked by its consistent user interface and overall ease of use.

When we first tested security event management products late last year, NetIQ opted out because it was working on this new version of its product. Measured using the same methodology as our original test, Security Manager 5.0 places a close second to ArcSight's ArcSight 2.5 product, which earned top honors (www.nwfusion.com, DocFinder: 2921). Security Manager is easy to install and is scalable, but the ArcSight product supports more devices out-of-the-box and has a slightly better GUI.

Security Manager comprises three main components: Event Manager, Intrusion Manager and Log Manager. Event Manager is the central console that manages and displays security events. Intrusion Manager watches incoming logs for signs of intrusion and either generates alerts or takes a defined action when an incident is suspected. Log Manager is the workhorse, handling collection, standardization and archiving of all managed logs. In our tests, we installed all components on one server without running into performance issues (see How we did it, right). For a production environment where you would watch a large number of events, you'd probably want to split these components up onto multiple machines.

NetIQ's Security Manager came in a close second to ArcSight in comparison of an earlier test.

Security Manager is an agent-based product, with agents available for servers running various flavors of Windows and Unix/Linux. These agents cull the servers' event logs. They perform initial rule analysis on the incoming events and forward them to a central database. Security Manager also includes a proxy agent — which must reside on a Windows machine — that effectively acts as a syslog server and taps into other security and network devices such as firewalls, intrusion-detection systems and routers.

Security Manager uses wizards to perform most tasks, such as agent installation and correlation definition. This is one of Security Manager's greatest strengths, as each wizard maintains a consistent interface to minimize training. We used the agent installation wizard to install agents on our Windows and Unix systems, and to install proxy agents to capture Check Point, Snort and Cisco switch logs. Setup for Snort logging was simple and took just minutes following the instructions provided in the Security Manager documentation.

Security Manager provides out-of-the-box support for many of the leading products on the market, such as Check Point and Snort, although it supports fewer than other products we tested. Through the NetIQ Development Console, administrators can create new data providers to handle logs from in-house applications or other third-party products not initially supported. We would like to see a data provider configuration wizard to make this setup process more consistent with the rest of the product.

The Security Manager administrative interface operates as a Microsoft Management Console snap-in, so all aspects of this product are managed through a standard Windows interface. A Web console is also available. One nice feature to both interfaces is an easy access icon in the system tray that quickly launches commonly used wizards and consoles. Security Manager includes numerous different consoles — Analysis Console, Development Console and Incident Management Console, which are all accessible through the main Monitor Console.

Creating event correlation rules is also a simple process through the Correlation Wizard. We created our test correlation rules in minutes. Development Console also can be used to fully customize your rules.

A unique feature in Security Manager is the Incident Management component. Here, Security Manager can watch incoming events for signs of a known attack and alert security administrators when it finds something suspicious. Security Manager also includes some incident-tracking options, which let administrators enter company-related comments for flagged incidents.

Security Manager includes more than 300 default views of the data and reports of the data stored in the database. The three main categories are forensic, trend and summary reports.

Security Manager is a strong product in the security event management market. Its fairly Windows-centric design might not fit all organizations, but its ease-of-use while maintaining a high level of flexibility and complexity is impressive.

Andress is president of ArcSec Technologies, a security company focusing on product reviews and analysis. She can be reached at mandy@arcsec.com.

Net Results

Security Manager 5.0 OVERALL RATING **3.7**

Company: NetIQ, www.netiq.com **Cost:** Starts at $2,500 for the console and $1,100 per server. **Pros:** Excellent configuration wizards; focus on ease-of-use. **Cons:** Windows-centric focus may not fit some organizations; low number of devices supported out-of-the-box.

The breakdown	
Filter/correlation 30%	3.5
GUI 30%	3.5
Device support 15%	4
Reports 15%	4
Help/documentation 10%	4
TOTAL SCORE	3.7

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

How We Did It

We set up a test bed to run a number of different products and systems to monitor. This included Windows 2000 Server; Microsoft Internet Information Server 5.0; Red Hat Linux 7.3; Apache 1.3.28; Linux firewall IPTables; Check Point NG; Snort 2.0; Cisco VPN Concentrator; Cisco Catalyst Switch 3500; NetScreen-100 running ScreenOS 2.5, Nessus and Solaris 2.8; McAfee Entercept; Tripwire; and Cisco Security Agent.

After device configuration, we created various filters and correlation events. We launched Blade Software's IDS Informer, Nessus and Internet Security Systems Internet Scanner to trigger events in our devices. We sustained approximately 300 events per second during this testing. As events were logged, we created cases and incident investigation in the products that provided this functionality.

NW Lab Alliance

Andress also is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance.

CLEAR CHOICE TEST

Peribit Networks' SR-100 appliance

Bandwidth boosting box boasts boffo benefits

BY BARRY NANCE, NETWORK WORLD LAB ALLIANCE

Adding Peribit Networks' new SR-100 appliance to your WAN link is an excellent way to increase bandwidth without buying more capacity. Our recent test of the SR-100 showed the appliance scales upwards in amazingly flexible patterns, offers a high degree of reliability, and installs quickly and painlessly. These features earn the SR-100 a Clear Choice Award.

Imagine your network infrastructure as a fleet of trucks traveling across a major highway. While the cargo is important, these trucks are often nearly empty. Telco WAN link charges are the equivalent of highway tolls that can cost your company an arm and a leg.

WAN link compression devices such as the Peribit SR-100 let you reduce the number of trucks being sent yet deliver the same cargo to each destination. You spend less on both highway tolls and truck maintenance.

Frugal WAN usage

We installed a pair of SR-100s, in combination with up to four SR-50 appliances as compression subprocessors, on our lab's six-segment Fast Ethernet network (see How we did it, below).

The SR-100's ability to quickly and thoroughly compress data at one end of a link and fluff it back up at the other (you buy Peribit devices in pairs and typically connect each one between a switch and a router) is impressive. We used FTP, server-based file copying of 1M-, 10M- and 50M-byte files, e-mail traffic and Web server accesses to test the SR-100's performance. In each test, a pair of SR-100s typically increased WAN link bandwidth by a compression factor of 5.2, and it did so at wire speeds, without introducing delay (see Table 1, www.nwfusion.com, DocFinder: 2928).

By themselves, SR-100s are formidable tools for increasing the amount of data a WAN link carries. For the sake of scalability, however, an SR-100 can attach to the WAN through other Peribit devices, such as the SR-50, which the SR-100 uses as compression subprocessors (Peribit calls them SR-100 clients). Moreover, Peribit says an SR-100 can connect to up to 2,000 other Peribit devices across as many WAN links and can handle network traffic at rates of up to 155M bit/sec. In our tests, we achieved aggregate throughput of 8.2M bit/sec through a T-1 link when we attached two SR-50 devices to each SR-100.

To our delight, the SR-100 has a path-optimization feature. When we established parallel T-1 and symmetrical DSL links between sites, we could configure the SR-100s to shunt low-priority e-mail through the less-expensive SDSL link and send other, business-critical traffic through the higher-cost T-1 link. Moreover, because both links were compressed, we could extend each link's life span before upgrading its bandwidth.

Compressing file transfers and Web pages is one thing, but we also wanted to test business-application traffic. We replayed a Sniffer packet capture of SQL Server database transactions through a variety of WAN links to see how the SR-100 would fare. Not only did the SR-100 increase the effective WAN link bandwidth by a factor of 5.2, it also increased the database transaction rate (see Table 2, DocFinder: 2929).

Peribit's SR-100 increases bandwidth of a WAN link by a factor of 5.2.

Installation and documentation

After installing the SR-100 by simply cabling it inline between a switch and router, configuring it was straightforward with Peribit's management console software. A quick-start booklet accompanies the device, and online documentation is clear and comprehensive. The device even reverts automatically and smartly to pass-through mode (no compression) if it suffers an internal fault or power failure.

The SR-100 seems a bit pricey in some configurations, such as linking many slow-speed frame relay lines to a central LAN. On the other hand, in other configurations, such as multiple T-3 lines, the SR-100 seems downright inexpensive. An SR-100C starts at $24,000, while the SR-100F starts at $26,500. Client SR-50s cost $6,000.

Until the telcos drastically reduce frame relay and leased line prices, the SR-100 is a nifty way to make your telco carry more of your data at a lower cost. It lets you defer buying more bandwidth or, for some WAN links, actually reduce the bandwidth you're paying for.

Nance runs Network Testing Labs and is the author of Introduction to Networking, 4th Edition *and* Client/Server LAN Programming. *He can be reached at barryn@erols.com.*

Net Results

SR-100

OVERALL RATING **4.6**

NetworkWorld CLEAR CHOICE

Company: Peribit Networks, www.peribit.com. **Cost:** SR-100C starts at $24,000; SR-100F starts at $26,500; Client SR-50 is $6,000. **Pros:** Excellent compression; reliable; scalable. **Cons:** Pricey in some configurations; minimal documentation.

The breakdown	
Performance 40%	5
Ease of use 20%	5
Scalability 20%	5
Documentation 10%	2
Installation 10%	4
TOTAL SCORE	4.6

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

How We Did It

We installed a pair of SR-100s, in combination with up to four SR-50s attached as compression subprocessors, on our lab's six-segment Fast Ethernet network. Each segment consists of a server and 25 clients, all connected to the Internet via T-1 and frame relay lines. Routers and back-to-back DSU/CSUs connected the segments to each other with 56K, 128K, 256K, 512K or 1.544M bit/sec Committed Information Rate frame relay links and full T-1 and T-3 links. We also used a Nokia DSLAM and Efficient Networks' Speedstream 5851 DSL modems to create secondary parallel data paths between segments. We ran Peribit's central device management console software on a 256M-byte RAM, 6G-byte hard disk Windows XP-based Dell Inspiron 5000. To access Peribit's Web-based configuration and reports interface, we used Internet Explorer 6.0.

Management Strategies

- CAREER DEVELOPMENT
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Staffing by numbers

Experts share insights into how many people it takes to run an IT operation.

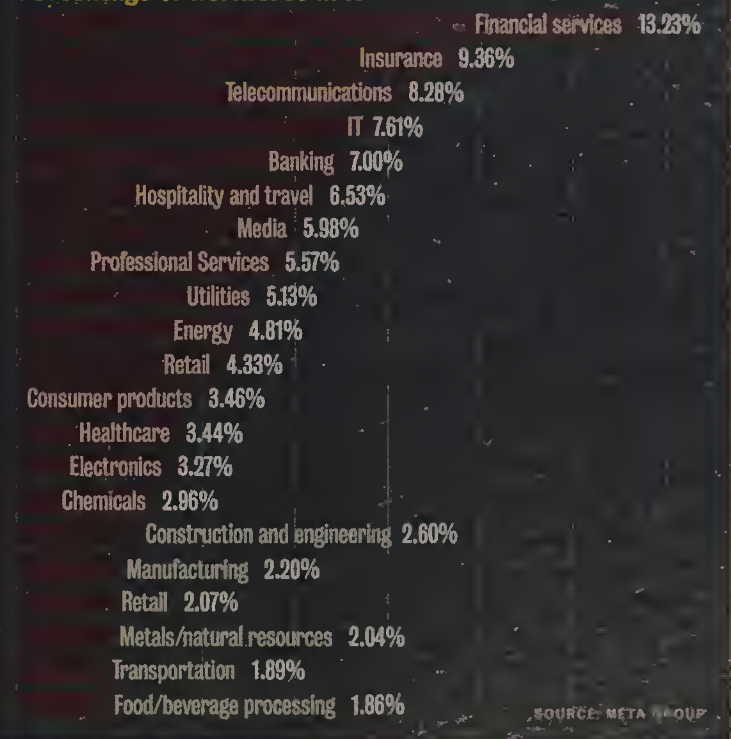
■ BY LINDA LEUNG

As the worst of the downturn is over, budgets are beginning to thaw for IT staffing. As you make the case for increasing head count, how many IT professionals do you need to run your company, and in which IT disciplines should your team members be experts? It helps to have a handle on how your peers are staffing their organizations.

IT employment by industry

Some fields are more reliant on IT workers than others. IT professionals make up a good chunk of the workforce of financial services firms, while food and beverage processing companies employ few IT staff.

Percentage of workforce in IT



SOURCE: META GROUP

According to Meta Group's 2002 study — its most recent research on this topic — the average U.S. firm budgets 3.53% of revenue to IT, and the average number of employees supported by one IT staff member is 120.3. While these numbers are useful indicators, Meta and other recruitment experts say the actual staffing levels of an organization depend on the company culture and its industry.

In the financial industry, for example, one in five employees — or 20% of all staff — could be in IT, says John Piot, executive vice president at Impact Innovation Group, a staffing firm in Atlanta. "Financial companies have mission-critical systems that require [a mix of] maintenance and project staff," he says. Meta breaks down the finance field into financial services, insurance and banking, and reports that 13.23%, 9.36% and 7% of the workforce in those respective sectors are IT employees.

In contrast, IT employees in the transportation industry make up just 1.89% of their organizations, according to Meta. Piot attributes the reason for the small IT presence to the higher concentration of non-IT workers, such as an airline's flight crew members and baggage handlers.

Industry sector also plays a role in determining the ratio of IT support staff to company employees. For financial services, the ratio could be 1-to-5, because of the complexity and mission-critical nature of the systems that run the business; while the ratio in the transportation industry could be 1-to-50, Meta says.

Some companies calculate the number of systems administrators they need according to the number of servers they have. Typically, there is one systems administrator for every seven to 15 servers, Piot says. You can get away with a higher ratio of servers per systems administrator if your server infrastructure is fairly consistent and standardized. "But if you have a mix of Windows and Unix servers and different operating systems, the ratio is lower. The more complexity is added to the environment, the more people you require," Piot says.

On the network side of the house, the ratio of communication devices per IT staffer could be as high as 45 to 50 devices to one network administrator. "Network devices are easier to maintain because there are fewer moving parts," Piot notes. However, the ratio can increase 25% if multi-vendor devices are used, requiring more people with knowledge of different systems.

Unique variables

Company culture and business goals also play a role in determining an organization's staffing levels. For example, how soon do you want help desk staff to answer calls — within one ring? What are your service-level agreements to your users? Do most of your employees work out in the field or telecommute? The more remote your workers are, and the higher your service levels, the more IT staffers you need to field help desk calls compared with an IT operation that serves employees who are all located in the same building, says Mark Lutchen, a partner at PricewaterhouseCoopers.

"What's the philosophy of your IT organization? If it never uses packaged applications and builds its own software and maintains it, and if it doesn't standardize on equipment, then you need more people on board to do maintenance on different platforms — that's a high-cost scenario," Lutchen says.

But staffing your IT operations is not just about knowing how many workers you need and the technical skills they should have to serve your organization at that point in time; you need to consider where your business wants to be in the future and whether your staff can make the transition. Does your company offer career paths for each individual that reflects where the business is headed? Are your IT professionals knowledgeable about your business environment and able to communicate with users?

Hiring contractors is also a useful way to augment existing staff numbers, particularly as companies begin to reopen projects that were closed during the economic downturn. Dru Neikirk, a partner at IT staffing firm MRE Consulting in Houston, is seeing demand for contractors to take on project management, change management, configuration management and systems design. "It takes time to train up staff so you hire specialists at peak demands," he says.

Piot of Impact Innovation advocates splitting your IT team between 75% permanent and 25% contract staff. "As projects go in and out, you don't want 100% of your staff to be permanent and have to start laying people off if your big project is canceled," he says. ■

Workload by IT roles

Use these figures as a starting point for determining the IT help you need.

IT role	Workload
IT manager and project leader	One manager/supervisor for eight staff positions.
Network analyst	One analyst handles $886,000 in network monitoring devices, systems and interfaces (or up to $2.5 million, if voice telecom is included).
Intranet/Internet specialist	35 specialists to support Web sites.
E-mail administrator	One administrator for every 1,400 mail users.
Help desk staff	One analyst to handle 600 transactions per month (average contact handle time is 12 minutes).

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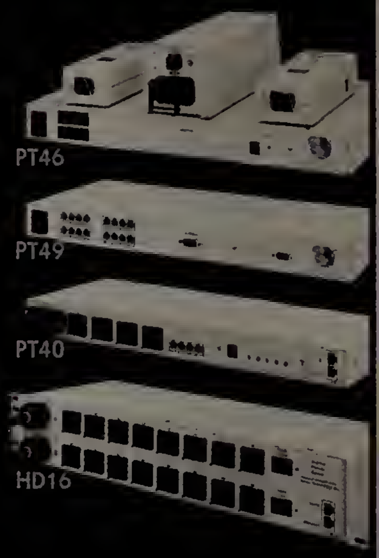

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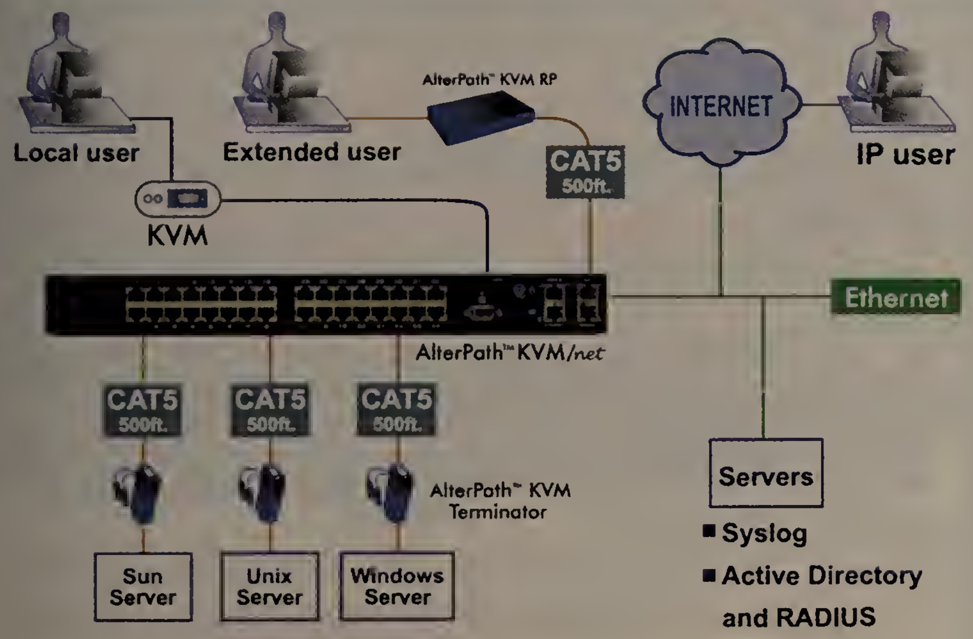

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A KVM switch allows single or multiple workstations to have local or remote access to multiple computers located in server rooms or on the desktop regardless of their platforms and operating systems. KVM switches have traditionally provided cost savings in reducing energy and equipment costs while freeing up valuable real estate.

Recognized as the pioneer of KVM switch technology, Rose Electronics offers the industry's most comprehensive range of server management products such as KVM switches, extenders and remote access solutions. Rose Electronics products are known for their quality, scalability, ease of use and innovative technology.

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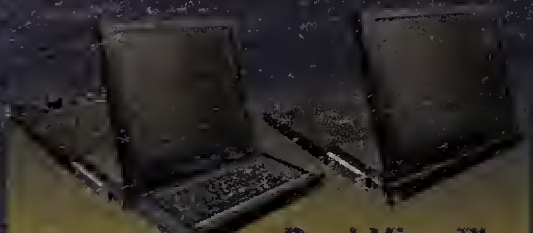

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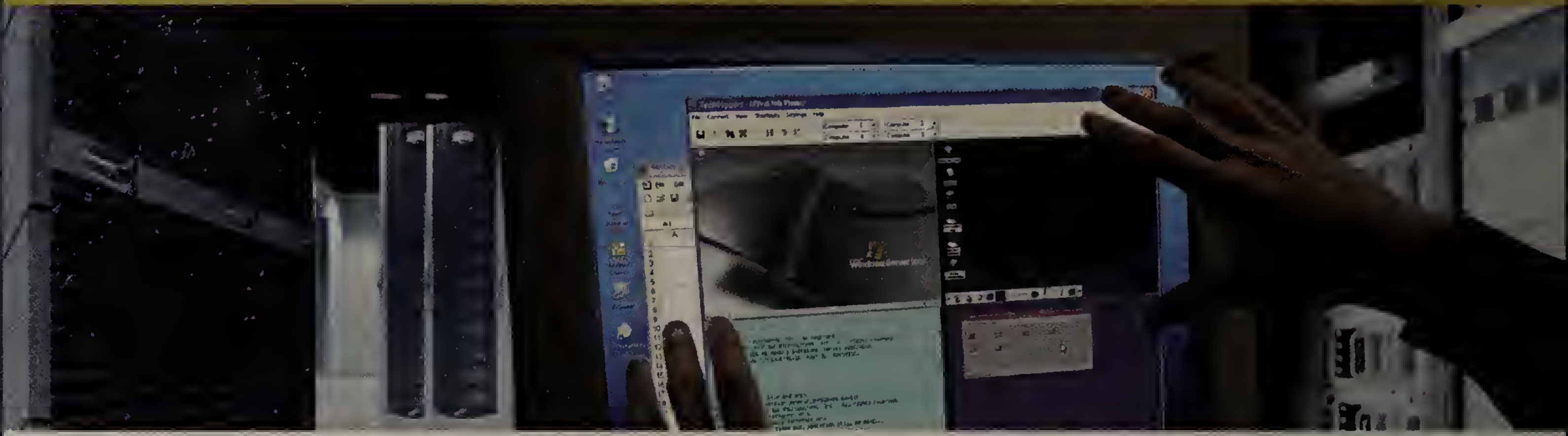

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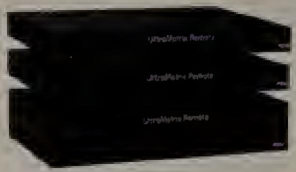

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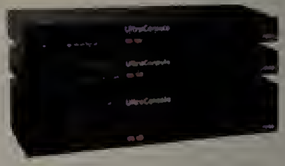

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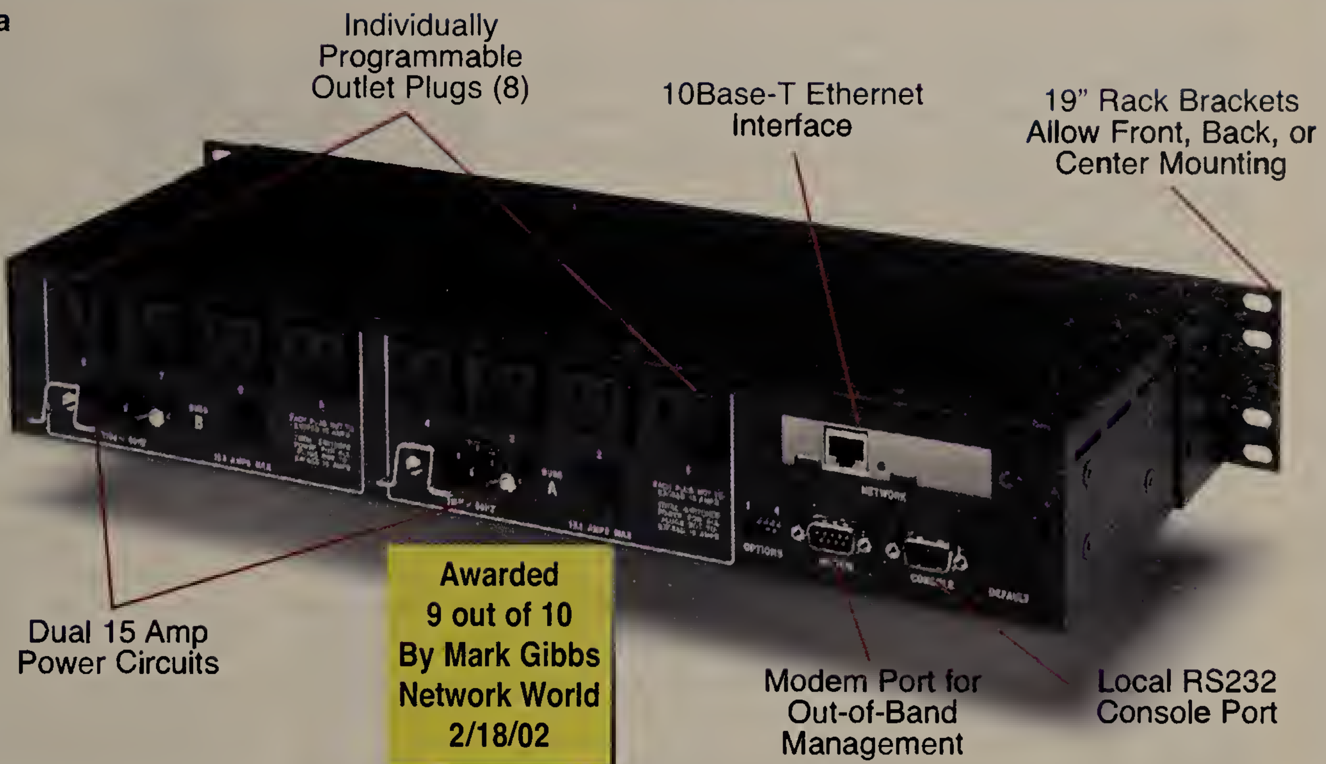
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IT Careers: The Feds Want You!

The good news over the past quarter has been a drop in job cuts in the information technology world, and an increase in hiring. Gaining fewer headlines is where a good portion of information technology careers can be found – with the U.S. government.

Postings on the Office of Personnel Management website and usajobs.opm.gov – include more than 5,000 listings for jobs that range from the most senior levels to entry level positions. In addition, there's information on how to get scholarships for studies that will qualify you for the positions.

Three dynamics are driving the hiring by federal agencies. First is the transfer to E-Gov – a management initiative to streamline and automate everything from Social Security and Veterans Affairs to the business enterprise systems that drive the literally hundreds of departments operated by the government.

The second is the transformation of the U.S. intelligence/security/defense operations. Increasingly the security and defense of the country, from natural disasters as well as outside threats, is driven by data gathered by federal agencies.

A third issue is the aging of the government workforce. According to an internal survey conducted by the Federal CIO Council, 76% of the federal IT workforce is over age 40 and less than 5% is younger than 30; most have worked for the government for more than 20 years and plan to retire in the next decade.

"Much of the emphasis on federal IT jobs is hiring new entrants from college," says Bob Cohen, senior vice president of the Information Technology Association of America, which recently completed its 14th annual Federal CIO Survey. The federal government has increased its recruitment efforts at colleges and universities.

Cohen says that in the down cycle of hiring among technology companies, the federal government has become more attractive as an employer. "It's easier to change positions from one federal agency to another," he says. "The job security and predictability of federal employment has become much more appealing to IT professionals."

The ITAA study found that the federal agencies are in need of some fairly specific expertise and experience:

- Certified program managers;
- Information security and authentication;
- Large-scale data management and repository development;
- Enterprise software implementation; and
- Enterprise architecture development.

Cohen says the opportunities aren't second-class offerings. In fact, several federal agencies made the Washingtonian magazine's Annual Great Places to Work list for the metro area: Fannie Mae and Freddie Mac among them. Others making the list that work with or for the government include Booz Allen Hamilton, Number Six Software, FGM (software/systems engineering), SRA International, Terrapin Systems, Acumen Solutions, New Media Strategies, Johns Hopkins University Applied Physics Laboratory, and Mitretek Systems.

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Programmer Analysts
(2 positions)

Programmer Analyst w/exp in ASP, XML, XSL, SQL Server, RoboHTML, ActiveX, COM+ & VB. REF AD#1

Programmer Analyst, Sr. w/exp in Java, J2SE, J2EE, HTML, Javascript, Weblogic Server, Apache Web Server, Oracle, TogetherSoft, Jakarta's Ant & CVS/WinCVS. Customize BEA's Personalization/Portal Server & Interwoven's Teamsite. REF AD#2

Mail Resumes to: EBusinesscorp Inc., 209 West Central St, Ste 106, Natick, MA 01760. PLS MENTION REF# WHEN APPLYING.

Jr. Programmers, Programmers, Software Engineers & DBAs:
Design, develop, test and implement specialized software apps. in (a) Oracle Financials & Manufacturing 11i & rel. tools, Erwin, Cognos Suite, Business Objects, MF Cobol & rel. tech.; (b) SQL DBA, Unix Admin., VB, Sybase, Cobol, C, Cold Fusion & rel. tech.; (c) J2EE & rel. tech., Rational ClearCase, CORBA, MQSeries & rel. tools; (d) PeopleSoft HRMS (HR, Payroll and Benefits Administration) Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports & rel. tools; (e) Java & rel. tools, CORBA, Sybase, Swing, Rational Tools & rel. tech. (f) Oracle Database Admin. in Oracle 11i, Oracle Enterprise Manager, Solaris AIX, VB, C++, SQL*Plus & rel. tools; (g) Cold Fusion & rel. tools, ASP, XML, DHTML, Crystal Reports, Java, VB, DCOM, MS SQL, Oracle 8i & rel. tools; (h) Oracle Financials & PeopleSoft, Tuxedo, Developer / Designer 2000 & rel. tools; (i) Hyperion Essbase Apps. & rel. tools; (j) Oracle, Peoplesoft, ASP, Java & rel. tools, SQA Robot, Mercury Test Director, Silk & rel. tools; (k) JDK, ASP, CORBA, Oracle, SQL Server, Linux, VB, HTML & rel. tools; (l) SAP-SEM, SAP R/3, SAP BW, ABAP/4, SAP (SD, MM, PP, FICO) & rel. tech. (m) Peoplesoft Financials (AP, AR, GL, FA) & rel. tools. US Workers only. Consulting positions requiring travel. Prevailing wage/ benefits. Send resume to HR, SSG, 3300 Buckeye Road, Suite 555, Atlanta, GA 30341, identifying interested position(s). No Phone calls please.

Prog/Analysts to analyze, design software appls using C, C++, Compile Tools, Oracle, Informix-4GL, Informix Online, SQL Server, etc. under Windows, UNIX OSs; design APIs for backup/recovery framework; provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require: BS or foreign equiv. in CS/Engg.(any branch) & 2 yrs of exp. in IT. F/T. competitive salary. Travel involved. Resumes to: HR, Semafor Technologies, Inc., 3300, Holcomb Bridge Road, Ste 212, Norcross, GA 30092.

Sr. Prog Analysts to manage teams to analyze, design, develop appls in client server/3-tier architecture using C, C++, Tuxedo, Btrieve, MQ Series, Oracle, Sybase, Socket API, COBOL, etc. under Windows, Unix OS; analyze business processes to determine reqs; implement appls and perform strategic planning/operations support; provide end user training. Require BS or foreign equiv. in CS/Engg. (any branch) & 3 yrs exp. in IT. Competitive salary, F/T, travel involved. Resume to HR, Ordusion Technologies, Inc., 3883 Rogers Bridge Road, Suite 504, Duluth, GA.

iKuni, Inc. currently has an opportunity in Palo Alto, CA for a Software Engineer (Artificial Intelligence Engineer) position. Req's Ph.D.+ 3 yrs. of exp. applying AI techniques to real-time games.

You may send a resume to iKuni, Inc. 3400 Hillview Ave, Bldg. 5, Palo Alto, CA 94304.

Jr. Programmers, Programmers, Software Engineers & DBAs:
Design, develop, test and implement specialized software apps. in (a) Oracle Financials & Manufacturing 11i & rel. tools, Erwin, Cognos Suite, Business Objects, MF Cobol & rel. tech.; (b) SQL DBA, Unix Admin., VB, Sybase, Cobol, C, Cold Fusion & rel. tech.; (c) J2EE & rel. tech., Rational ClearCase, CORBA, MQSeries & rel. tools; (d) PeopleSoft HRMS (HR, Payroll and Benefits Administration) Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports & rel. tools; (e) Java & rel. tools, CORBA, Sybase, Swing, Rational Tools & rel. tech. (f) Oracle Database Admin. in Oracle 11i, Oracle Enterprise Manager, Solaris AIX, VB, C++, SQL*Plus & rel. tools; (g) Cold Fusion & rel. tools, ASP, XML, DHTML, Crystal Reports, Java, VB, DCOM, MS SQL, Oracle 8i & rel. tools; (h) Oracle Financials & PeopleSoft, Tuxedo, Developer / Designer 2000 & rel. tools; (i) Hyperion Essbase Apps. & rel. tools; (j) Oracle, Peoplesoft, ASP, Java & rel. tools, SQA Robot, Mercury Test Director, Silk & rel. tools; (k) JDK, ASP, CORBA, Oracle, SQL Server, Linux, VB, HTML & rel. tools; (l) SAP-SEM, SAP R/3, SAP BW, ABAP/4, SAP (SD, MM, PP, FICO) & rel. tech. (m) Peoplesoft Financials (AP, AR, GL, FA) & rel. tools. US Workers only. Consulting positions requiring travel. Prevailing wage/ benefits. Send resume to HR, Prosoft Technologies, Inc., 3300 Buckeye Road, Suite 379, Atlanta, GA 30341, identifying interested position(s). No Phone calls please.

Prog. Analysts to analyze, design, develop, implement CRM apps using Java, Java Script, VB, VB Script, ASP, SQL Server, Oracle, Clarify Suite of Products, XML, Visual Source Safe on Windows & UNIX OS; work with business analysts to map reqs for Clarify Data Model; involve in customization/implementation of Clear Support appls; create, execute batch programs; test, debug, modify existing software. Require: BS or foreign equiv. in CS/Engg.(any branch) & 2 yrs of exp in IT. F/T. Travel involved. Competitive salary. Resume to: HR, ABZ Consulting, Inc., 2600 Century Parkway, Ste 100, Atlanta, GA 30345.

Software Engineer (with Bachelors degree and 3 years experience) - Job Entails and requires experience in design and development of applications using C, C++, Informix, Network programming, Sockets, X-Windows/Motif, AWK, PERL, Lotus Notes, Rational Rose and Unix. Relocation within USA Possible. Attractive compensation package. Send resume to Bridget Piraino, Asset Control Systems, Inc., One Rockefeller Plaza, Suite 1420, 14th Floor, New York, NY 10020.

System Administrators to install, maintain, administer Windows, Linux, Solaris OS; install, maintain Web/Mailing Servers; plan, maintain, troubleshoot LAN/ WAN; maintain backups & provide hardware/software support for users; create, update user accounts; evaluate new/existing systems, recommend future IT strategies. Require: BS or foreign equiv. in CS/Engineering (any branch) and two yrs exp in job offered. MS of foreign equiv. in one of the above fields will be accepted in lieu of BS & 2 yrs exp. F/T. Travel Involved. High Salary Resumes to: HR, Global IT Solutions USI, Inc., 600 Stevens Port Drive, Ste 125, Dakota Dunes, SD 57049

Consultant

(Glen Mills, PA and other locations throughout the United States). Responsible for the implementation of Oracle ERP (Enterprise Resource Planning), focusing on CRM (Customer Relationship Management) for business clients. Design business processes and systems utilizing Oracle applications including Oracle Financial Applications, Oracle Supply Chain Applications, and Oracle CRM Applications. Responsible for the implementation of Oracle 11i involving the design, development, and implementation of Service and Sale modules, as well as the integration of Accounts Receivable and Order Management modules. Conduct requirements gather, gap analysis, configuration of applications, and technical and functional analysis for customizations. Engage in the development and execution of unit and integration testing scripts for the applications being implemented. Provide go-live production support by resolving application issues. Utilize PL/SOL and Oracle Report Developer 6i to design and develop custom reports. Migrate setups and execute testing of software applications using Kintana.

Salary $74,752/year. Mon.-Fri. 9:00am-5:00pm. The position requires a Bachelor's degree in Computer Science, Mathematics, Management Information Systems, Engineering or Business Administration + 2 years experience in the job offered or 2 years of experience as a Consultant, Systems Analyst or Technical Associate. Related experience must include at least 1 year of experience in Oracle ERP (Enterprise Resource Planning), Oracle Financials Applications including Accounts Receivable, Oracle Supply Chain Applications including Order Management, Oracle CRM (Customer Relationship Management) Applications including Service and Sales, PL/SQL, Oracle Report Developer 6i and Kintana.

Please send your resume, referencing Job Order Number WEB 433936 to: PA CareerLink, FLC Unit, 235 W. Chelten Ave., Philadelphia. PA 19144. EOE.

Software Developer sought by software development and database management company in Longmont, CO to work in Lisle, IL and other unanticipated job sites in the US. Design and develop computer software applications for company's emergency response call handling applications which access relational database management systems on Windows platforms. Develop system and software requirements, create architectures code test and debug the applications. Utilize Microsoft Foundation Classes, C++, Computer Telephony Integration, Telephony Applications Programming Interface and hardware device controls in the development process. Requires Bachelor's in computer science or related field; 3 years in the design and development of computer software applications that access relational databaase management systems on Windows platforms utilizing Microsoft Foundation Classes, C++, Computer Telephony Integration, Telephony Applications Programming Interface and hardware device controls in the development process. 8am-5pm, M-F; $75,000/year. Respond via resume to Employment Programs, PO Box 46547. Denver, CO 80202 and refer to CO5083510

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Assist in providing consulting services for implementation, testing, development, maintenance and enhancement of software packages and applications by utilizing industry standard methodologies leveraging competencies in databases and database design, systems architectures, operating systems, data structures, algorithms and networking along with development tools such as ER Win to develop applications and systems utilizing Java Technologies, Microsoft Visual Basic technologies, COBOL, PowerBuilder, n-tiered architectures on environments including Windows and legacy mainframe (TSO) leveraging database platforms such as Microsoft SOL Server, Oracle & Sybase. Perform technology assessments and development analysis to support reviews utilizing Load Runner and XML. Utilize data modeling tools such as ER Win, and competencies in data structures, algorithms, and networking to contribute to the design and development of technical architectures. Assist in analyzing and revising existing system logic difficulties and documentation.

Salary is $57,150 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree or equivalent in Computer Science, Math, Engineering (any), Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Track Lead, Data Conversion Architect, Application Development Cons, Application Development Track Lead. Related experience must include a minimum of 1 year experience in Visual Basic, COBOL, PowerBuilder, Microsoft SQL Server, Sybase, and Load Runner.

Please send your resume, referencing Job Order Number WEB434306 to the: PA Careerlink, FLC Unit, 235 W. Chelten Avenue., Philadelphia, PA 19144. EOE.

Programmer Analyst required by Kendall Park, NJ based Info Tech Solutions Provider. Duties: Product development, Implementation and support. Responsibilities include requirements gathering, architecture, Product development, Acceptance planning, deriving test cases, UAT, Implementation, and post implementation support. Coordination with Spantel's offshore partner Mascon's IT team. Additional responsibilities include Process definition; Project Initiation, Project Planning and Tracking, Metrics calculation, Build and release management, documenting product learning's for further enhancements. Conducting Market survey and researching on multiple products / competitors to meet the ever growing demands of customers, development and Implementation of the product to be in compliance with HL7 and HIPAA standards. Analyzing, architecting, designing and developing the product to interface with the legacy systems.Req.: Bachelors degree in Math, or Sci., or Engg., or comp. Sci., or Information Technology, (will accept an equivalency based on a combination of education and/or experience), and two years experience in the job offered or related occupation. Hours: 40hrs/wk Mon.-Fri; 9:00 AM to 5:00PM. Apply to President, Spantel, LLC., 3084 Route 27, Ste 8, Kendall Park, NJ 08824.

IT PROFESSIONALS

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Design and develop fast-track applications to reduce costs and provide a component-based approach to the enterprise applications utilizing J2EE solutions including EJB's, XML and XSLT. Implement Java (J2SE) solutions to allow our clients to run the same application on various operating systems, hardware platforms and consumer technological devices. Utilize Enterprise Application Integration (EAI) to provide a common framework for integrating incompatible and distributed systems allowing our client to integrate their business processes. Implement J2EE and EJB design patterns and develop strategies for mapping application requirements, developing best practices for J2EE and to collect EJB strategies. Use XML (Extensible Markup Language) as a standard data format for Enterprise Application Integration (EAI) solutions and utilize Enterprise Tools and Databases to provide support for the full development cycle.

The wage offered is $85,500/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Engineering (any), Business Administration, Computer Science, Mathematics, or Information Systems plus 4 years experience in the job offered or 4 years experience as a Senior Consultant, Lead Developer, Programmer Analyst, or Software Programmer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must also include at least 2 years of J2EE (including EJB's, XML and XSLT), J2SE (Java 2 Platform Standard Edition), Enterprise Application Integration (EAI), J2EE and EJB design patterns, and Enterprise Tools and Databases.

Please send your resume, referencing Job Order Number WEB 434352 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Snr Software Engineer to analyze, design, develop & architect web applications in component model (EJB) focusing on financial modeling & planning and utilizing high-level technologies such as EJB, JAVA, J2EE, JHTML, JSP, XML, XSL, FOP, Servlets, RMI and JavaBeans. Will develop planning tools & personalized web sites for in-house business units; design & develop graphs and charts using 3rd party technologies; and will monitor, maintain & upgrade components and database for business requirements. Requirements: Bach or equiv in C.Sc., Eng, Math or Physics, plus 2 yrs exper in job offered OR 2 yrs in on-line transaction processing. Candidate must also possess demonstrated expertise in the following: developing web applications in J2EE, JHTML, and EJB; in the administration of UNIX, Clearcase, and Webserver & in Oracle Database & financial modeling algorithms. Sal: $80,405/yr; M–F, 9a–5p. Submit 2 resumes to Case # 200300130, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st fl, Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Business Development Manager - Applications sought by company that provides computing network storage and that manufactures computer storage devices to work in Louisville, CO and other unanticipated job sites in the US, to be the liaison between the business area and IS for identifying and executing initiatives to improve client satisfaction. Understand business area strategies/processes and performance objectives and be involved in the full life-cycle software/process development. Analyze and determine technology requirements to enable the achievement of these objectives. Test and troubleshoot the finished applications (developed using Java, JSP, ASP/VB, FRED, SOL/DB, HTML, XML, JavaScript, SAP R/3 and ABAP/4) to make sure that the requirements have been met. Manage allocation of resources, including processes to meet objectives, monitor problems, escalation process and issue resolution. Requires a Bachelor's in computer science or related field; 3 years as a software engineer using SAP R/3 and ABAP/4; Working knowledge of Java, HTML, XML, and JavaScript, JSP, ASP/VB, FRED, and SOL/DB. 8am-5pm, M-F; $112,642.70/year. Respond via resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5083498.

Senior Analyst Developer sought by home satellite design/mfg.company in Littleton, CO to work in Englewood, CO and other unanticipated job sites in the US. At a senior level engage in full life-cycle software development and customization of Oracle General Ledger, Payables, Receivables and Fixed Assets modules of Oracle financial and business applications. The applications are designed and developed in a three-tier client/server environment and utilize Windows NT or UNIX operating systems. Analyze requirements; create designs; design documentation; and code, test, debug, modify, and implement the applications. Serve as technical lead as needed. Utilize PL/SQL, SOL*Plus, Pro*C, HTML, Developer 2000 and other Oracle tools in the design and development process. Requires a master's or foreign equivalent or bachelor's or foreign equivalent in eng.including chemical eng.or computer science, plus three years developing and customizing Oracle financial and business applications; 3 yrs experience performing the core duties and using the technologies described above. (The 3 years in the job offered may be concurrent with the three years required under education); 8am-5pm, M-F; $80,000/yr. Respond via resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5081268.

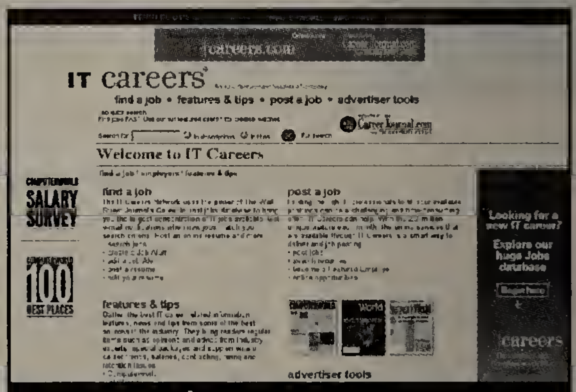
Shaktee Technologies Inc. (DBA Exceel) has multiple openings for RF Electrical Engineers (Cellular) at its office in San Jose, CA and unanticipated client sites throughout the US. Must be able to travel temporarily to client sites within the U.S. with expenses paid by employer. Min. reqmts include BS in Electrical Eng. or related field. Please send resume to: Attn-HR Manager, 1975 Hamilton Ave # 33 San Jose CA 95125.

Oracle Application Consultant w/exp in Oracle Application ERP, Oracle Developer 2000, Oracle Form, Ouest s/w (Toad), Oracle SOL Plus, Oracle Report, Oracle Discoverer, Oracle Designer 2000 & Reports. Perform conversion of data into Oracle Application using SQL Loader & Data Loader on Win 2000, HP UX & Sun Solaris. Send res to: Optima Technology Partners, Inc., 264 South River Rd, Ste 454, Bedford, NH 03110.

Software Engineer to dsgn, dvlp & write systm & device drivers for LAN/WAN network devices & to debug & perform integration tests on networks based on Cisco Routers & Switches. Provide tech support. Will utilize IP security, Novell Netware & Java. Req. Masters in Engg or Comp Sci + 2 yrs exp in job offer or job duties. Resp. to Artilligence Inc., 1500 Market St., E. Tower 12 Fl, Philadelphia, PA 19102, Fax: 603-372-2771, E-Mail: sal.hernandez@artilligence.com

S/W Engineers to analyze, design business appls for SAP R/3, ABAP, Workflow, C, C++, Java, VB, Oracle, SOL, etc. under Windows, UNIX OS; analyze business processes to determine reqs & generate reports; prepare documents, flow charts and programming specs; create appl prototypes for client approval and rapid appl development; train users in business appl usage. Require: MS or foreign equiv. in CS/Engg.(any branch)/Math & 1 yr exp in IT. High salary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 3965 Johns Creek Court, Suwanee, GA 30024.

PROG. ANALYST - WEB DVLPR: Analyze, dsgn, build & launch high profile e-commerce sys. using n tier arch. & object-oriented technologies. Admin. internet info. server. BS in Comp. Sci., Electrical or Electronics Engnrg + 3 yrs exp. in job offered or as a Software Engnr - Web Dvlpmnt reqd. Exp. must include Java, XML, ASP.net and VB.net. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $66,731/yr. Submit resume to: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No. WEB 433076.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Editorial Index

A
Advanced Micro Devices 1
Agere Systems 17
AirMagnet 1
AOL 8
Apple 17
Archos 30
Aruba Wireless Networks 1
ASG 10
AT&T 33, 35

B
BellSouth 35
Bluesocket 1
British Telecom 35
Broadwing 35

C
Check Point 8
Cingular Wireless 33
Cisco 8, 12, 17
Courion 10

E
EMC 14
EndForce 8
Enterasys Networks 8
Equant 35

G
Groove Networks 21

H
Highwall 1
HP 1

I
iAnywhere 21
IBM 1
Infonet 35
Intel 1
Internap 35
Invio 6
IPass 23

L
Lancope 32
Leucadia National 12
Level 3 Communications 35
Linksys 25
Lotus 21
Lucent 24

M
Masergy Communications 35
MaxWare 10
McAfee 8
MCI 12, 33, 35
Meru Networks 1
Microsoft 1, 6, 8, 14, 21, 50

N
Netegrity 10
Netgear 6
NetIQ 37
NetScout 14
Network Chemistry 1
Nextel 6
Nortel 8

O
Oblix 10
Oddpost 23
Opsware 49
Oracle 1, 21

P
Peribit Networks 38
Positive Software 14
PowerDsine 17

Q
Qwest 33, 35

S
SBC 35
Sprint 23, 33, 35
Sun 1, 21
SWsoft 14
Sygate 8
Symantec 6, 8

T
Thor 10
T-Mobile 33
Trend Micro 8
TurnTide 6

U
UUNET 35

V
Veritas Software 6
Verizon 6, 33, 35
Verizon Wireless 24

W
WGL & Associates 30

X
XO Communications 23, 35

Y
Yahoo 8, 23

Advertiser Index

Advertiser	Page #	URL
AdventNet Inc.	43	www.opmanager.com
Barracuda Networks	20	www.barracudanetworks.com
Cyclades Corp	41	www.cyclades.com/nw
EMC Corp	9	www.emc.com/backup
Executive Software	19	www.diskeeper.com/nwdk89
Foundry Networks	51	www.foundrynetworks.com/way
Hewlett Packard	2-3	www.hp.com/info/bca
Hewlett Packard	15	hp.com/go/demandintegrity6
Hot Brick Network Solutions	42	www.hotbrick.com
IBM Corp	26-27	ibm.com/eserver/advantage
IBM Corp	52	ibm.com/middleware/integrate
IDG World Expo	34	www.linuxworldexpo.com
Intel Corp	11	intel.com/business
IronPort	4	www.ironport.com/nw
IT Watchdogs	43	www.ITWatchdogs.com
Juniper Networks Inc	28	junipernetworks.com
Lucent Technologies	7	www.lucent.com
Net 6 Inc	13	www.net6.com/hybrid
Network Instruments LLC	40	www.networkinstruments.com/nine
Rose Electronics	42	www.rose.com
Securematics	43	www.securematics.com
Server Technology	40	www.servertech.com
Western Telematic Inc.	43	www.wti.com
WR Consultant Associates	43	www.WRCA.net

Network World Perspectives

Advertiser	Page #	URL
Cisco Systems	17	cisco.com/go/ipcnow

Network World Fusion - www.nwfusion.com

3Com Corporation
Adobe Systems
Airespace
American Power Conversion
Aventail
Avocent
BNX Systems
Cisco Systems, Inc.
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Patches

continued from page 1

device makers are exaggerating the extent of FDA rules. While device makers are largely mum on this topic, those that do talk acknowledge they could do more to smooth the process but also say healthcare IT shops need to re-evaluate how they set up their networks.

Steve Wexler, chief biomedical engineer at the Department of Veterans Affairs' Health Administration Division, says the veterans' organization is addressing the problem head-on by crafting a plan to tighten security on the networks of about 150 VA hospitals and that the organization hopes to have it in effect by fall.

"You just can't modify a regulated device," says Wexler, who worked with about a dozen network and security managers at the VA to devise the "Department of Veterans Affairs Medical Device Isolation Architecture Guide."

The plan calls for VA hospitals to beef up security on LANs by adding internal firewalls, virtual LANs and remote-access control lists to cordon off Windows-based GE Medical imaging systems and other gear.

The guide acknowledges that routine patching is often "not available in most cases" to medical devices with commercial operating systems such as Windows. Therefore, networked patient-care equipment could be exposed to attacks "that have the potential to destabilize an entire network, shut down hospital operations, corrupt data and jeopardize patient safety."

Wexler says users of networked medical devices should put pressure on manufacturers to do a better job of addressing security concerns.

"This problem is solvable," he says. "The intent is to minimize the exposure and the risk. The vendors understand there needs to be a culture change. It's on their radar scope."

Wexler says changes could include the shipping of equipment with network ports closed, or better access-control or vendor Web sites announcing vulnerabilities and a status for patching. That way, he notes, hospitals won't have to give up the benefits of networked medical equipment.

Healthy networks

Here is a five-step approach to protect a hospital's network from the U.S. Department of Veterans Affairs:

1. Gather a list of all networked medical devices.
2. Group individual devices into systems.
3. Categorize those systems by communication requirements.
4. Mitigate the systems into virtual LANs.
5. Protect the VLANs with access control lists or firewalls.

SOURCE: "THE DEPARTMENT OF VETERANS AFFAIRS MEDICAL DEVICE ISOLATION ARCHITECTURE GUIDE." FULL DOCUMENT AT WWW.NWFUSION.COM, DOCFINDER: 2945.

Philips Medical Systems last week explained why patching is so hard with medical equipment -— and also acknowledged its sales and support personnel might be sowing confusion about the matter.

Nick Mankovich, director of product IT security, says Philips makes about 300 patient-care medical devices that are regulated by the FDA and that about 60% of them run on Windows.

"There are two priorities for the FDA: safety and effectiveness," he says. Software changes such as patches require Philips to do extensive verification and validation in a test regimen that is "measured in months — it's always the case," he adds.

"I don't want a medical IT person patching these systems," Mankovich says. "We've all seen how Microsoft patches are breaking systems."

Some Philips customers have said Philips sales and support representatives have promised to make software patches available within a week after Microsoft releases them but failed to deliver on the promise.

"A three-day patch? I just can't guarantee that. The FDA has certain expectations," Mankovich says. "Sometimes patches will break the applications, and in the healthcare industry we can't afford to have mistakes for our patients."

He acknowledges the manufacturer and its customers at times might not be having a realistic dialogue about the patching issue.

To improve the situation, Philips is inaugurating an in-house education program for sales and support staff on the topic of security and patching. For more than a year, the company has been doing a risk analysis of its products with the goal of identifying potential security risks and providing customers with documentation on how to offset the risks. But this effort is taking longer than first thought, he says.

Mankovich says hospitals worried about computer worms hitting unpatched systems have two basic choices with the current generation of Microsoft-centric patient-care machines: unplug them from the hospital's LAN or improve intranet security through defense-in-depth strategies.

He says most gear is designed to work fine while not networked, though Mankovich concedes that this means giving up the ease of remote access to images and patient information, and a return to hospital staff hoofing it from room to room.

The alternative would be beefing up internal network security by adding layers of defense likely to include virtual LANs, internal firewalls and intrusion-prevention systems that block attacks, not just monitor for them.

"The pendulum has swung too far to flattened and too-open networks — and the pendulum will swing back again to ensure confidentiality, data integrity and availability," Mankovich says. "Hospital administrators have to understand what security in depth means."

Some hospital administrators question why medical-device manufacturers have shifted to Windows as the preferred platform over the last few years, when Microsoft's track record on patching has been so poor.

"Personally, I think it's a mistake for medical-device suppliers to use a bug-ridden operating system like Windows XP, 2000 or NT for a life-care device," says Matthew Klevemann, senior technical architect for information services at Children's Hospital of Pittsburgh.

Mankovich says Philips moved to predominantly Microsoft-based platforms to lower costs, which he says is what customers were demanding. He says there are no plans to move away from Microsoft.

Hospitals that might have reduced costs by having a common platform and networked devices must expect to spend money to improve security of medical equipment if they don't want to unplug, he says.

Making changes is tough in the healthcare industry, says Susan Caron, director of clinical products at Psyche Systems, which makes a blood bank software product that also is available as a hosted service.

Caron says it took about three years to get the blood bank software, which is based on VMS, through the FDA 510(k) regulatory approval process. Porting it to another platform would entail re-submitting it for approval, she says. ■

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Aventail goes small with SSL VPN appliance

■ BY TIM GREENE

Aventail is wheeling out a scaled-down, less-expensive version of its Secure Sockets Layer VPN security appliance to make the technology more attractive to smaller customers.

Called EX-750, the appliance supports up to 50 simultaneous users, while the existing EX-1500 supports up to 1,000, which is more than many customers need or want to pay for.

Customers can buy the new appliance with a 25-user license for $7,000, while the same capacity on an EX-1500 costs $9,500. EX-750 also comes with a 50-user license that costs $10,000.

The equipment sits between the Internet and corporate servers to proxy sessions secured by SSL between remote users and servers. Remote machines require an SSL-enabled Web browser, but no other client software.

Other vendors make similar gear including Cisco, F5 Networks, Nokia, Nortel, Juniper and Whale Communications. Start-up enKoo makes a less-expensive SSL remote-access appliance — $1,000 for 10 users — geared for small customers that lacks many features others offer. AEP Systems, a competitor focused on low pricing, sells the AG-60 appliance — which supports up to 50 remote users — for $7,000.

While Aventail's EX-750 costs the same for just 25 users, it includes all the features that its larger sibling, the EX-1500, offers. For instance, the Aventail devices support a virtual desktop, which is an encrypted vault created on the remote machine that is wiped out after the secure session, says Eric Siegel, an analyst with Burton Group. This action leaves no trace of any files that are used during the sessions and is a feature few SSL vendors have. Called Secure Desktop, this vault is a new feature that debuted recently with the latest version of the company's ASAP software. The new ASAP version included changes that let it run on EX-750 hardware. ■

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Multi-core

continued from page 1

work to manage IT budgets.

At the same time, other technologies — such as server virtualization and grid computing — that fall under the utility computing umbrella, in which computer resources are pooled and workloads shifted according to application demands, also are causing some tricky software licensing issues.

The trend toward multi-core systems is an effort by server chip makers to drive up performance, while reining in system power requirements and heat generation. By using these architectures, vendors can use more lower-power cores — which generate less heat — instead of ramping up the frequency on single cores to boost performance. IBM has had a dual-core chip since 2001, and Sun and HP rolled out dual-core processors earlier this year. Intel and Advanced Micro Devices recently announced that they would move to dual-core designs in 2005.

"Multi-core is a symptom of a bigger issue," says Al Gillen, research director of system software at IDC. "The bigger issue is that we have changing technologies that are making historical licensing models no longer directly compatible with the way people are buying and deploying their equipment today."

W.L. Gore & Associates, best known for its Gore-tex fabric, negotiated a software license with Oracle late last year and then began updating its Sun hardware. In the process of bringing in servers based on Sun's first dual-core chip, UltraSparc IV, the Newark, Del., company discovered that Oracle considered each dual-core UltraSparc IV to be two processors for licensing purposes. That meant W.L. Gore was faced with paying double what it originally expected to pay for licensing, amounting to $100,000 per server in additional costs.

"When we first heard this, we weren't happy, of course," says Richard Sun, network systems engineer at W.L. Gore. "In all of our initial conversations with Oracle, before we purchased the licensing, we had said we were going to buy the [Sun] hardware when we were ready to implement, so we felt going to UltraSparc IV was no issue."

Analysts say W.L. Gore is not alone when it comes to being surprised by the increased software costs when updating to multiprocessor systems.

"In fact, I have spoken with clients who have been told exactly the opposite from the server vendors," says Jane Disbrow, a research director with Gartner. "They've been told, 'No, you don't have to pay double licenses. This is going to save you money in software.' I'm the one that has to give them the bad news."

While most software vendors still are feeling their way around the multi-processor issue, Oracle recently made changes in its contract language to ensure that there is no confusion. In April, the vendor changed its license agreement to redefine its processor metric to explicitly state: "For the purposes of counting the number of processors which require licensing, a multi-core chip with 'n' processors shall be counted as 'n' processors."

One reason for the confusion is that software vendors have not regarded chips with simultaneous multithreading (SMT) or Intel's Hyper-Threading technology, which make single processors work as though they were two processors, as more than a single processor.

"The reason for that is pragmatic, and that is that those two threads per core don't do anything like double the performance. It may be 10% to 25% to 30% performance improvement, but essentially SMT is a performance-enhancing technique to increase utilization of a processor core," says Gordon Haff, an analyst with Illuminata.

What isn't so obvious, some industry observers say, is what kind of performance boost users will see vs. comparable single-core systems.

In addition, licensing costs associated with multi-core architectures might complicate other issues, such as buying processors for redundancy, users say.

Eric Kuzmack, IT architect at newspaper conglomerate Gannett in Silver Spring, Md., says he deploys dual-processor systems to have hardware redundancy.

"If the software vendors choose to charge us for two processors when we move to dual-core, it makes it more difficult for us to afford to put in two processors because then I'll be buying two physical packages of chips, but I'll have to pay for four processors worth of licenses, not two," he says.

Despite user concerns, most industry observers seem to agree that it's not unreasonable for software vendors to consider dual-core CPUs as two processors. Bigger issues are likely to emerge, however, as architectures move into four cores and beyond. Sun, for example, in 2006 plans to release systems based on a next-generation chip code-named Niagara, which will have processors with eight cores, each capable of running four simultaneous threads, or software instructions. Intel, which plans to release a dual-core Itanium chip next year, reportedly expects to increase the number of cores to eight and then 16 in the years ahead.

"By the time it gets beyond dual-core, the software vendors are truly going to have to think about a different way to license their products," Disbrow says. "Eventually, people won't be able to live with the software costs. The software vendors are definitely going to have to look at how they're charging for this."

How the issue can be resolved isn't clear. But analysts and users expect software vendors to change licensing plans to make them more flexible.

Sun last year began using subscription pricing for its Java Enterprise stack of middleware software, letting users pay for applications based on the number of employees, regardless of what systems the software runs on and how many services and customers it serves.

John Fowler, executive vice president of network systems at Sun, says the trend toward multi-core processors, and dynamic computing environments, in which workloads are moved among systems according to application demands, prompted the licensing change. Before last year, Sun licensed software on a per-system basis.

"What drove the change for us was the fact that customers really need to be able to move around workloads and respond to different application needs," he says. "A dynamic computing environment is not eight weeks of lawyers every time you have to renegotiate a license."

Gannett's Kuzmack complains that with virtualized systems "it takes us longer to purchase the software license than it does to provision the virtual machine."

Dan Kaberon, director of computer resource management at human resources service firm Hewitt Associates in Lincolnshire, Ill., agrees that today's software licensing is lagging behind advances in hardware and systems management. Being able to move workloads and consolidate systems on virtual machines, shouldn't result in a financial penalty on the software side, he says.

"I would just like to see a rational alignment of licensing so that if we're able to collapse multiple workloads onto a smaller number of servers that our licensing reflect that new environment and not pretend as if we were still taking advantage of all of our dedicated machines," he says. "In that case, we no longer have the upward growth and capacity opportunity and we shouldn't be penalized for it." ■

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Soft costs

New hardware architectures such as multi-core systems, virtualization and grid technology provide flexibility but add challenges users must cope with down the road. Consider:

- **Multi-core, multi-licenses:** Intel and AMD plan to move to multi-core designs, and that means users across the board need to think carefully about how independent software vendors define a CPU.
- **Virtual machines, real costs:** While per-processor licensing means users can run multiple instances of an operating system or application, many vendors still require licenses for each instance deployed in virtual environments.
- **Grid workloads, workload issues:** Grids made up of multi-processor boxes raise issues with per-CPU licensing if workloads are moved among one-processor boxes and two-processor boxes, for example.

Opsware extends automation features

■ BY DENISE DUBIE

About a year ago, IT managers at Inflow, a technology service provider in Denver, determined that an investment in automation technology could reduce the number of full-time system administrators needed to manage 600 servers from nine to six.

A recent review showed by using Opsware Systems software, Inflow can maintain the same 600 servers with only three administrators.

"We had to commit to performing a baseline and to integrating the software with our systems, but now we have a 200-to-1 server-to-admin ratio, which is a real gain from using that [Opsware] platform," says Lenny Monsour, general manager of hosting and infrastructure services at Inflow. Monsour credits extensive integration between Opsware and Inflow systems for the successful rollout.

Opsware this week plans to unveil Opsware System 4.5, which the company says will make it easier for customers to integrate the automation software into existing environments and reduce manual effort around patch, asset, change and server management. The core software is written to work with a new software add-on, Opsware Extension Builder, which provides templates to help customers build automation applications for custom processes and proprietary systems.

"Opsware sold an out-of-the-box automation tool to customers with very complex environments, who then wrote additional code to customize the product to get use of the automation in their networks," says Andy Schroepfer, founder of Tier 1 Research. He says some customization must be done to automate patch distribution, server provisioning and application upgrades, whether through systems integrators or in-house IT managers. Opsware added the capabilities in its software to enable customers to do in-house development more easily.

The product uses a combination of server and agent software. The server software is installed on a Linux or Solaris box and serves as the core, while the agents are distributed to every managed server. Opsware System 4.5 costs between $1,000 and $1,200 per server and ships with Opsware Extension Builder. ■

BackSpin Mark Gibbs

Frankensoft: The monster we made

"We must also work to change a number of customer perceptions, including the views that older versions of Office and Windows are good enough, and that Microsoft is not sufficiently focused on security."
— Microsoft CEO Steve Ballmer in a July 6 company-wide e-mail.

Ballmer's words are hard to take without being cynical. As Owen Thomas quipped in a recent issue of his Ditherati newsletter (www.ditherati.net), this was "Ballmer, addressing employees on the urgent need to deceive customers more aggressively."

Microsoft has bent the rules of business, but we must be realistic: We created the monster.

We wanted inexpensive software and there was Microsoft — the right company with the right products at the right time. We let ourselves be sold on its "vision" and its story. Of course its rose-colored glasses filtered its vision but it never actually fooled us, it just sold us the products and the stories we wanted.

Microsoft continues to take advantage of its opportunities in ways that have been judged illegal and in other ways that are unethical but not unlawful.

When I say unethical, I mean that Microsoft intentionally created software to "lock" customers into its way of doing things despite the consequences.

These consequences appeared in the form of instability and poor supportability. You can trace that back to the monolithic and clumsy architecture of Windows, compromised by allowances for its own applications, and to the embedding of applications such as browsing and multimedia rendering as core operating system functionality.

Who could defend Microsoft pushing its "standards" in preference to established de jure standards? Or what about where it's had to implement de jure standards and done a horrible job of it — for example, Outlook's appalling IMAP support.

We all bought into its "innovative" products because we had business problems that had to be solved *now*, and Microsoft had the solutions. Unfortunately, neither Microsoft nor the best and brightest in the IT industry ever foresaw where we would wind up.

So as much as we should like to be understanding and constructive with regard to the monster we made, that isn't possible because the monster hasn't matured, and we can't (and can't afford to) kill it off. Alas, it is still clumping around the countryside, grasping arms to the fore, dead-fish gaze seeing only what it wants to see, leaving chaos in its wake.

The worst chaos comes from security issues. While this has been historically centered on Windows, now the largest-scale problems are in Microsoft's browser, Internet Explorer.

We're at what should be the tipping point, the critical moment where something should be done, has to be done — where we should all admit that for all sorts of good reasons we backed the wrong horse.

But can Microsoft fix the problems with Internet Explorer? Some people contend that Explorer's architecture is fundamentally flawed and therefore can't be fixed. Others contend the layering of patches on patches can never produce a stable result. Whichever way you look at it, you have to ask, can we afford to continue using Explorer?

We have a good idea of what it would cost to migrate from Explorer to something else (say Opera or Firefox), and it isn't trivial. How could we encourage a mass consumer migration?

Yet if we don't do something about our reliance on Internet Explorer we risk e-commerce becoming a mess and corporate Explorer-based systems going into meltdown. IT will be left to clear a disaster that could have been avoided for much less cost if we had done something before it got out of hand.

Yes, we got what we asked for and as a consequence created a monster. If we can't kill it do we have the nerve to do something about its spawn?

Cries of "where's my pitchfork?" to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Could we stone them instead?

President Bush last week signed into law the Identity Theft Penalty Enhancement Act, meaning that those who pilfer personal information such as credit card and Social Security numbers now face the prospect of up to five additional years in the slammer.

Here's hoping that every minute of that extra time is as miserable as it is well deserved. Identity theft not only costs U.S. businesses and consumers tens of billions of dollars annually, but the unabated escalation of such crime also threatens to grievously undermine public confidence in conducting commerce online. Merchants are panicked, as well they should be, and a variety of industry alliances have coalesced around the common goal of stemming the tide, as well they should.

Perhaps worst of all, identity theft keeps creeping into *my* life.

My ATM/credit card was canceled a while back because BJ's Wholesale Club let a crook make off with a batch of numbers, something I learned of only after the card was rejected at the grocery checkout counter. Fortunately, the checkout embarrassment and a few days of nervous uncertainty were the extent of my victimization. Identity theft victims typically spend between 30 and 60 hours working to undo the damage, according to one study.

Today, I received an "eBay account error" notice from a party pretending to be the online auction outfit that couldn't possibly have been a more obvious phishing foray: I don't have an eBay account. I've gotten a handful of similar entreaties as of late about my non-existent accounts with PayPal and various banks.

A savvy friend who works right here at "The Leader in Network Knowledge" tells me he almost got hooked by a phisher shortly after using PayPal to buy something on eBay. The real transaction had lowered his defenses, a natural enough reaction on anyone's part.

They're targeting my family, too. We have had an MSN account since the beginning of time but no longer need it now that our cable company has come across with broadband (something Verizon still hasn't done in my neighborhood five years after telling us DSL would be available within six months). Anyway, Mrs. Buzz opened an e-mail ostensibly from MSN customer service, which said they needed our credit card number confirmed. She presumed I had already attempted to cancel the account and that the request for our number was a legitimate part of that process. I had done no such thing. Fortunately, she showed me a printout of the e-mail before acting on its request to fax them the information.

So I'm ready to see a bunch of these creeps do serious time in the can.

However, wanting to see such criminals punished isn't the same thing as believing that the harsher sentences spelled out in this new law will do much to reduce identity theft. I don't believe any such thing.

Politicians are extraordinarily focused when it comes to "getting tough" with criminals, especially in an election year. On the other hand, they aren't so great about measuring the success of these get-tough initiatives. Jail cells cost taxpayers plenty, and despite nonstop prison building they remain in short supply compared with the number of individuals who might reasonably belong in one — including, these days, that other blight on the 'Net — hard-core spammers. When identity thieves get five extra years, some other deserving criminal — maybe even a violent one — isn't doing that time.

This might be all well and good if the public gets an extra measure of protection against identity theft in the bargain; not so well and good if all we get is the satisfaction at seeing bad actors behind bars.

Note to identity thieves: Mine really isn't worth stealing. Note to readers: The address is buzz@nww.com.

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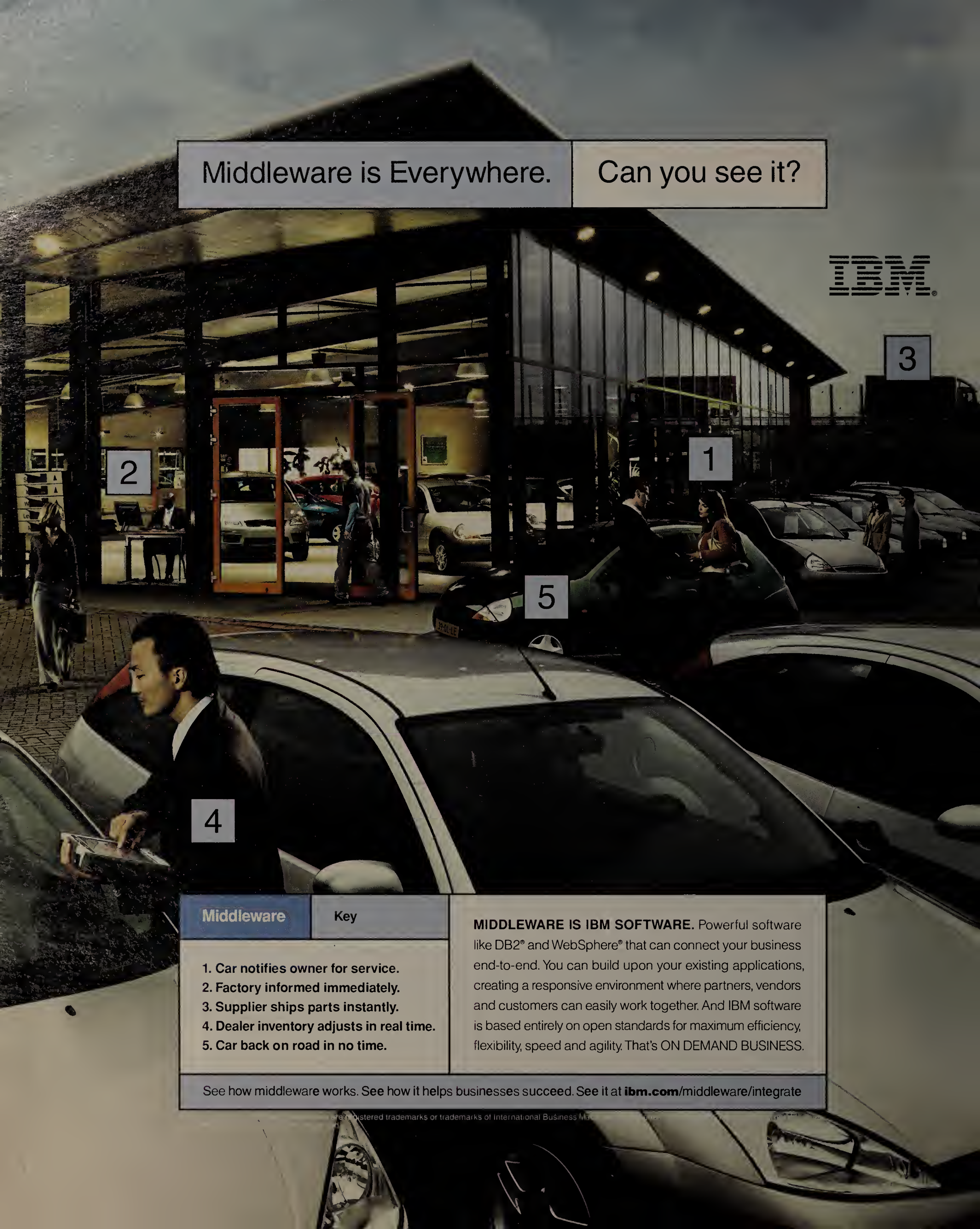

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